

Hitchcock's Machine Tool Blue Book

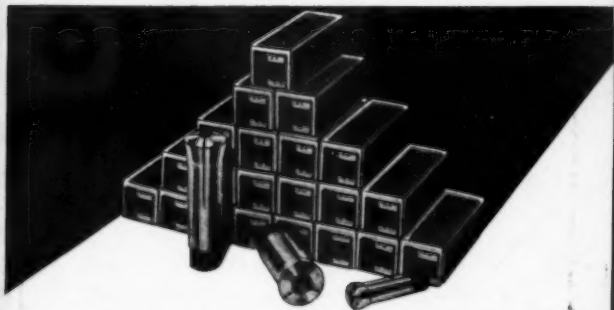
MAY, 1935

THIRTIETH YEAR

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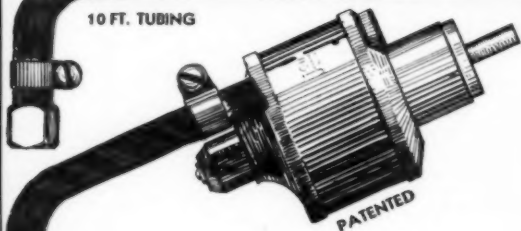
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**THE NEW (D. M.) JOHANSON
POWER UNIT** has swept into shop-wide
popularity on the strength of its SPEED (75,000 RPM.)

Power— Compactness— Adaptability—
Deversified Uses— Freedom from Vibration—
Minimum Noise— Low Air Consumption—
Lightness of Weight ($\frac{3}{4}$ lb.)— Length (4" overall)

Low Cost — \$39.50 with the accessories illustrated.

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JOHANSON TOOL CORP.

20 Palmer St.,

Cambridge, Mass.

AIR FILTER



Hitchcock's **Machine Tool Blue Book**

**Selected
Circulation**

**20,000
Monthly**

MAY, 1935

THIRTIETH YEAR

SWORN STATEMENT OF CIRCULATION

For Last Six Months of 1934

Robert C. Van Kampen, being duly sworn, deposes and says that he is the Circulation Manager of Hitchcock's Machine Tool Blue Book, a monthly publication, and that the average number of copies of each issue of said publication mailed during the last six months of 1934 was 20,446.

(Signed) Robert C. Van Kampen

Nellie E. Ryan
Notary Public

The above is printed in accordance with the ruling of the Code of Fair Practices for the Periodical Publishing Industry.



Published By

Hitchcock Publishing Co.
508 S. Dearborn St., Chicago, Ill.

Consult the Classified Finding Index for your requirements

KRW Hydraulic and Sensitive ARBOR PRESSES

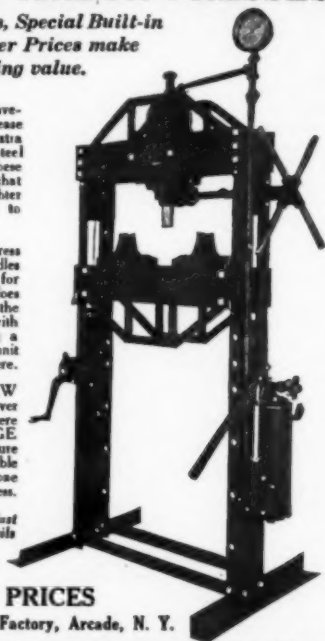
New Improvements, Special Built-in Features and Lower Prices make them an outstanding value.

THE last word in convenience, efficiency and ease of operation. Built extra strong and well braced, with steel trusses electrically welded, these presses will withstand strains that would cause presses of lighter and inferior construction to buckle or collapse.

Hand wheel for sensitive press operations has sliding handles which pull out to the ends for increased leverage. Work does not have to be changed from the work table as is the case with other make presses having a separate sensitive press unit mounted on the side or elsewhere.

The importance of this KRW feature as a time and labor saver can be appreciated. Also there is **NO EXTRA CHARGE** for this important built-in feature on a KRW Press. Work table can be raised easily with one hand. A strictly one-man Press.

Write for special circular, just off the press, giving full details and specifications of all KRW Arbor Presses.



PRICES

F. O. B. Factory, Arcade, N. Y.

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|---|----------|
| No. 37—35 ton Hydraulic and Sensitive Arbor Press (hand operated) | \$126.00 |
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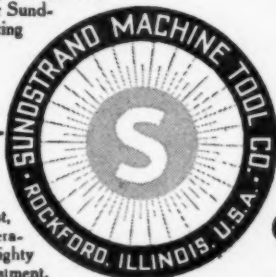
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SUNDSTRAND BALANCING TOOLS

Save time and money. Anti-friction discs; strong, well made, economical. Range in size from No. 1 Bench, with capacity for 800 lbs., to No. 5 Extra Heavy, with capacity for 24,000 lbs. Others available for balancing airplane propellers, balancing and drilling flywheels, pulleys, etc.

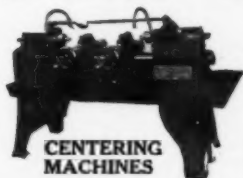


Write, *today*, for details on these and other Sundstrand cost-cutting products.



No. 56 illustrated, others available. Fast, accurate, an operation saver, a mighty profitable investment.

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**CENTERING
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Accurate, compact, portable. Adjustable heads. Quick-acting spindle. Seven sizes.



These Sundstrand tools, like our Lathes and Milling Machines, cut costs and make work easier. » » »

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MAN'S
TOOL!**

**HUSKIER
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Latest Engineering
Improvements in
Every Detail from
Handle to Chuck

EXTRA POWER!!

...plus Ball Bearing Construction
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—these are only part of
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Test these husky drills in actual performance against any others you ever used — and they will more than prove their superior performance! Extra powerful motors with windings baked in Bakelite... grease sealed ball bearings throughout... light, strong die cast alloy bodies... genuine Jacobs chucks... precision construction and finest materials in every detail.

10 POWERFUL MODELS

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SKILSAW INC., 3304 Elston Ave., Chicago

Put Production Jobs on one of these Drills

1 to 6 Spindles—Bench or Floor

Designed from the base up for production work, Buffalo 16-inch Drills feature ease and speed in handling. Interchangeable unit parts with individual motor drives provide flexibility in arrangement. Special applications requiring unusual distance from spindle nose to table can be handled easily by substituting longer column in any type bench or floor. Head operates equally well horizontally, inverted or at an angle. Speeds cover the usual run of work within the capacity of this machine, ranging from 3000 r. p. m. for $\frac{1}{2}$ " drills to 400 r. p. m. for $\frac{3}{4}$ " drills. Electrical equipment is suited to application. Horse-powers from $\frac{1}{2}$ to $\frac{3}{4}$ may be used, on any current characteristics. V-belts and sheaves provide smooth drive without strain on bearings.

All details of mechanical construction are superior. Spindle pulley is carried on steel sleeve, rigidly mounted on two large ball bearings in the head casting, thus there is no radial load on the alloy steel spindle, which runs on two ball thrust bearings, sealed against dust and oil splashing.

The Buffalo 16-Inch Drill has all the essentials for fine performance, durability and accuracy. Efficient design keeps first cost down.

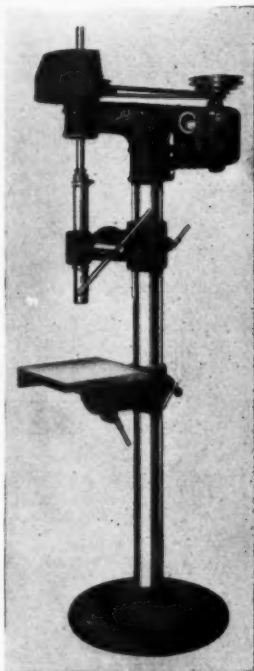
Send for your copy of Bulletin 2730 which gives complete details.

Buffalo Forge Co.

161 Mortimer St. Buffalo, N.Y.

"Buffalo"

**16-Inch Ball Bearing
Production Drills**



"This **RIDGE** cutter rolls right thru any pipe I put 'er on."



The Trick is in This Remarkable **RIDGE** Tool Steel Knife Wheel.



EASIER, quicker pipe cutting. This special **RIDGE** tool steel knife wheel rolls smoothly through any kind of pipe.

And it keeps on rolling—far more cuts than you're used to getting.

Clean, practically burrless cuts.

This superior cutting action comes from the distinctive **RIDGE** knife wheel blade. Not ground out of bar but coined out of sheet tool steel, hammered and heat-treated and then cast into a reinforced hub. These remarkable blades fit any **RIDGE** type cutter.

Cutter housing is reinforced, won't warp or break. It always cuts true.

By all means, see this cutter at your Jobber's before you buy your next tools.

The Ridge Tool Co., Elyria, O., U. S. A.

RIDGE

Super-Performance

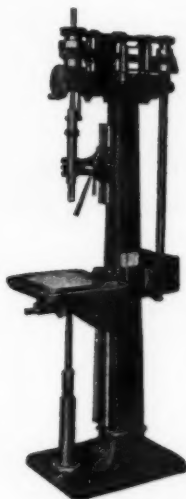
Pipe Wrenches

Cutters

Vises

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FOOTBURT



A Single Spindle Footburt Sipp Sensitive Drill

**Made in three
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More holes with this machine

Why? Because you can change speeds in two seconds or belts in ten seconds—because the automatic idlers keep the belt pulling to capacity at all times—because the full ball bearing equipment and accurate machining gives a smooth, fast cut.

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Gears of All Descriptions



Accurate Gears at Low Cost—Let us Quote You!

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TRADE MARK

Flexible Shaft Grinders Sanders and Polishers



For All Industrial
Applications

A Size For
Every Job

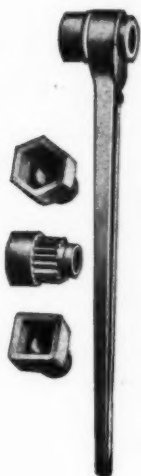
No. 3524-D $\frac{3}{4}$ hp 3450 rpm
grinder with 6 ft. flexible
shaft, tilting-swiveling caster
base mounting with tool tray. Can be fur-
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spindles for sanding, polishing or grinding.
Also ask about our low priced $\frac{1}{2}$ h.p. grinder.

Bulletins on request

MALL TOOL COMPANY,

7742 South Chicago Ave.,
CHICAGO, ILLINOIS

Tested to Stand a Pull of 2200 to 2400 Pounds



THIS Wrench is made of an electrically treated metal of unusual strength. It is so strong that a two-foot wrench cannot be bent or broken by the combined straight pull of ten husky men—a pull equivalent to 2200 to 2400 pounds. Along with this added metal strength the LOWELL Safety-Steel Wrench has fully enclosed ratchet and parts, with absolute crushing action on hardened steel pawls.

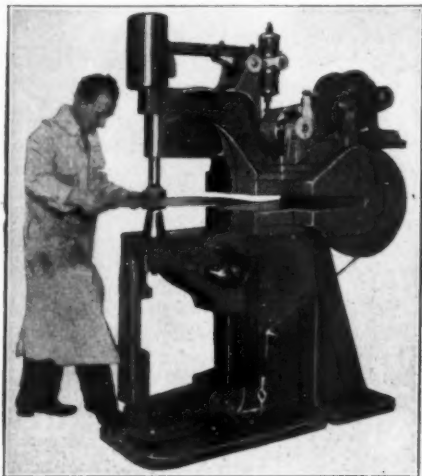
Fully Guaranteed

EVERY LOWELL is fully guaranteed. Try a LOWELL Wrench in your own shop—put it to work on a long, hard job and see for yourself how it stands up under the toughest punishment.

*[Write for Full Details
Send for Catalog T]*

LOWELL WRENCH CO.
WORCESTER, MASSACHUSETTS, U. S. A.

SPECIAL HIGH SPEED HAMMER FOR FLATTEN- ING TRIMMED BUTT WELDED AUTO BODY SHEETS



Trimmed butt welds on sheets of No. 20 gage steel used in the manufacture of automobile bodies are being flattened at the rate of 70 inches a minute in one plant by the use of special machines recently built by The High Speed Hammer Co., Inc., 305-321 Norton St., Rochester, N. Y. On these sheets the riser, which has been trimmed, averages about 0.004 inch per side. The hammering operation quickly reduces this thickness to the gage of the metal. The production time, of course, depends on the amount of material left for flattening after the trimming operation and on the gage of the sheet. The hardness of the sheet and of the weld also materially affects the production time.

In the method of manufacture previously followed in this plant, two stampings were cut out and welded together

(Continued on Page 14)

ATLAS QUALITY

Shop Equipment Since 1911

Quality & Precision

HEAVY DUTY DRILL PRESS

Complete
with
JACOBS
chuck

\$36.95

A big, strong Drill Press of the famous ATLAS quality—precision-built and production-priced. Many leading manufacturers are using batteries of these ATLAS tools in their regular production.

This Floor Type Drill Press stands 70" high, maximum distance base to chuck jaws, 49". Drills to center of 15" circle. Choice of solid or swivel table.

FOUR large deep-groove SKF bearings—two in the head, two more in the quill—assure permanent accuracy and smooth, quiet operation. Nine speeds, from 600 to 5,200 R.P.M. Special Atlas speed reducer (\$3.95 extra) reduces to 200 r. p. m., gives press ample power to run $\frac{1}{2}$ " drill in steel. Equipped at this price with JACOBS $\frac{1}{16}$ " to $\frac{1}{2}$ " Chuck.

Other ATLAS Drill Presses at \$13.95, \$22.45 & \$28.75. Also metal working lathes, Arbor Presses, etc. Send for Free catalog with pictures and full specifications.



ATLAS PRESS CO.

1850 N. Pitcher St.,
KALAMAZOO, MICH.

Complete display at ATLAS SALES CO., 35 E. Wacker Drive, Chicago

after the forming operations. A portable tool was then employed for removing the excess welded material, and there was always danger of marking the sheet or removing more metal than was desirable. Grinding to clean up the welds also had the same drawbacks.

With the method at present employed, two flat sheets are butt-welded together, and the flash is then removed by a standard flash trimming machine, after which the sheet is given a uniform thickness throughout by one of the High Speed Hammering Machines. The welded sheets are now stamped and formed without any danger of the weld opening or fracturing. The sheets are then ready for finishing, priming and painting, without the need of soldering, filling, filing, or similar preliminary operations.

These Hammers are built with gap to accommodate various widths of sheets. The handling of the large welded sheets is facilitated through the use of roller tables or ball transfers constructed on each side of the machines.

NEW LOWELL SAFETY-STEEL WRENCH



The Lowell Wrench Co., Worcester, Mass., have designed a Safety-Steel Wrench which they guarantee not to break. Their two-foot wrench is tested to stand a pull of 2200 to 2400 pounds, or equal to the pulling strength of ten husky men. It has fully enclosed ratchet and parts with absolute crushing action on hardened steel pawls.

The Lowell Reversible Ratchet Wrenches, it is claimed, give quick action in either direction with safety. They are used for operating hand taps, tube expanders, vise shanks, valve stems, etc.

Their "Red Face" Bridge Builders Reversible Ratchet Wrenches are a heavier type, used instead of a crank handle on heavy shanks, valve stems and jacks, also on bridge, railroad and construction work. Their "Red Socket" and "Red Socket" steel socket bridge wrenches are of still more rugged type, for the heaviest class of work.

The manufacturers will mail complete information to interested parties upon request.

(Continued on Page 16)

Every machine to its class of work *Saves Money*



No. 2
Standard
Plain
Miller

Large millers have the tasks no other miller can handle. "To the Standard Millers" belong the countless jobs of tool room, experimental department, odd lot milling and duplicate part work for which they have proven profitable.

Manufacturers of Hand Milling Machines, Power Feed Milling Machines, Plain, Universal and Spline Vertical Milling Attachments, Vises, Arbors, Collets.

*The full details will interest you.
Let us have your inquiries.*

Standard Engineering Works
PAWTUCKET, R. I.

Genesee Adjustable Hollow Mills

Cutting Costs Everywhere!

7 Different Styles

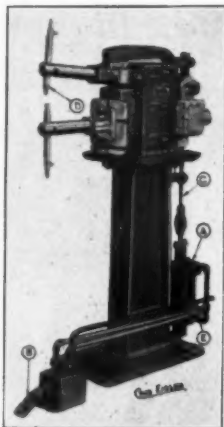
Genesee Tools cut your costs. They are accurate within one-thousandth of an inch. We design and manufacture hundreds of special and multiple operation tools. Send us samples or blueprint for quotation.

Send for Catalog

Genesee Mfg. Co., Inc.
141 N. Water St.,
Rochester, N. Y.



EISLER AIR OPERATED ELECTRIC SPOT WELDERS



Electric Spot Welders which utilize air pressure for closing the electrodes upon the work have recently been developed by Charles Eisler of the Eisler Engineering Co., 768 So. 13th St., Newark, N. J.

These air-operated types are the latest addition to the popular line of foot-operated and motor-driven welders manufactured by the above company.

Available in sizes from five to seventy-five K.V.A. and capable of welding metals up to .750" in thickness, these new air operated welders, because of the particular design of the air cylinder, require a very small volume of air for their efficient and economical operation. Air pressures up to 80 pounds are used, the pressure depending upon the size

of welder used. An air operated spot welder of 20 K.V.A. capacity is shown in the illustration.

Upon pressing the foot controlled valve B, air from the supply line E is admitted into the cylinder A. Pressure of air upon the piston within imparts motion to the electrode D through the vertical drive shaft C.

The use of air operated welders not only relieves the operator of supplying the force to bring the electrodes together, but permits, by means of a regulating valve in the supply line, exact regulation of electrode pressure upon the work, an essential factor for the production of uniform welds.

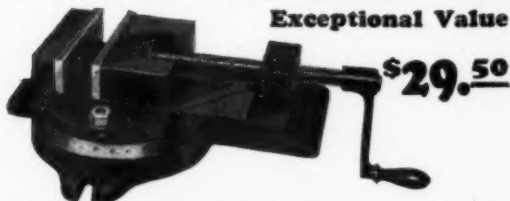
PERFECTION SPRING WINDER

The Hjorth Lathe & Tool Company, 12 Beacon St., Woburn, Mass., have designed the "Perfection Spring Winder," for the precision winding of extension, compres-

(Continued on Page 18)

THE NEW IMPROVED
L - W Swivel Base Vise

Exceptional Value



For Milling Machine, Drill, Shaper or Planer

A few features of this high grade 75lb. vise are:
Hold down adjustable jaw—Graduated base (can be used as Plain or Universal)—Jaws open $7\frac{1}{4}"$ —Width of jaws $6\frac{1}{4}"$ —Depth of jaws $2\frac{1}{2}"$.

Write for circular giving full details of this exceptional vise

**L-W Chuck Co., 18 N. St. Clair St.,
TOLEDO, OHIO**

We have a fine proposition for dealers—write us

CLEAN Machinery Is SAFE Machinery

**THIS effective cleaning tool is a
SAFETY DEVICE**



**Needed in your plant
The CLEMENTS
—CADILLAC**

BLOWER — SUCTION CLEANER — SPRAYER

Really **CLEANS** any motors or intricate machinery—thoroughly, safely. Drives **DRY AIR** free from oil or moisture at great velocity but low pressure. Removes dust, lint, wood or metal particles—reducing risk of "shorts" and "burn-outs", cuts down fire hazard and excess wear. Convertible to sprayer or suction cleaner.

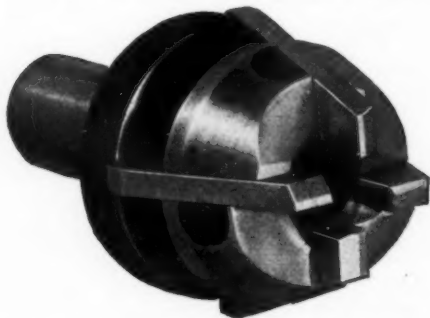
10 DAYS' FREE TRIAL

**CLEMENTS MFG. CO., 6850 Narragansett,
CHICAGO, ILL.**

sion and torsion springs. It is also adapted to wind taper, double taper and left-hand springs. It makes springs of any length, diameter or pitch from any gauge wire. Will use flat square wire.

The manufacturers state that this ingenious device is designed to support the smallest arbor, which obviates "kinking," and that it can be used in connection with vise, lathe or drill press.

GENESEE ADJUSTABLE HOLLOW MILLS



These Adjustable Hollow Mills, as improved to date, have adjustable, replaceable blades which can be replaced at nominal cost, making it unnecessary to continually buy new tools.

Styles L and M, as shown in the illustration, are light-duty tools, which the manufacturers state are accurate within one-thousandth of an inch. The blades can be removed for sharpening and replaced without loss of accuracy.

These tools are made by the Genesee Manufacturing Co., Inc., Rochester, N. Y., whose line of Hollow Mills includes Style T for finishing cuts on steel; Style V for finishing cuts on cast iron, brass, bronze, etc.; Styles K and J for heavy roughing cuts, as well as two styles of Facing Tools for spot facing, finishing bevels, grooving and forming.

(Continued on Page 20)

A New Motor Drive Unit

for Lathes, Shapers, Millers
and Screw Machines

\$45. and
up



This simple, well built unit will modernize your cone driven machinery at a cost no higher than that of installing a countershaft.

One machine or entire plant can be modernized at low cost Let us quote you.

Send for Details

Steege Machinery Co., 18 So. Clinton St.,
CHICAGO, ILL.

HANDNIB— A NIBBLING TOOL

New Process Saves
You 90% On—

*Templates, Trial
Blanks, Sheet
Metal Experimental Work, etc.*

Illustrations and prices
on complete line sent
on request.



NATIONAL MACHINE TOOL CO.
1536B CLARK ST., RACINE, WIS.

THE STANDARD LINE OF MILLERS



The Standard Engineering Works of Pawtucket, R. I., are well known manufacturers of Hand Milling Machines since 1912. They state that there are thousands of their machines in operation, and that they can be found in most of the large manufacturing plants.

The Standard Line of Millers includes the No. 0, No. 1, No. 1½, and No. 2 sizes. Any of these Millers can be supplied with or without oil pump equipment, power feed attachments, universal mill-

ing attachments, or spline milling attachments.

For cutting Woodruff keyways, through slots, slabbing, straddle milling, and many other operations, the manufacturers say that these fast operated and quickly tooled-up machines are more economically operated than the larger and more expensive machines.

The Standard Hand Milling Machines are designed to consume little floor space, and with distribution of metal in the columns to reduce vibration, together with full scraped bearings throughout, it is claimed that they offer an unusual combination for accurate work.

Complete details can be secured by writing to The Standard Engineering Works at the address above given. Or if any interested party would like to see one of these machines, they say they will be glad to refer him to the nearest user.

A NEW "LAYOUT FLUID"

The Dayton Rogers Manufacturing Co., 1845 E. Franklin Ave., Minneapolis, Minn., are now marketing their "Layout Fluid" for machinists and tool makers, which they state is a great time saver, with marked advantages over the old copper sulphate method.

(Continued on Page 22)

T. H. L. FRONT LEVER BENCH PUNCH

Malleable iron body; working parts hardened. Steel shaft and plunger. Die cannot lose alignment with punch. All parts interchangeable. Built for hardest, toughest work. Weight 70 lbs.

We can supply extra Punches at 20 cents each; extra Dies at 30 cents.

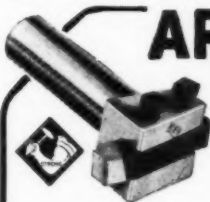
Capacity $\frac{1}{2}$ " holes through $\frac{3}{16}$ " steel; $\frac{13}{32}$ " through $\frac{1}{4}$ " steel. Can also be made for up to $\frac{3}{8}$ " holes through thinner metal. Punches and dies in stock from $\frac{1}{8}$ " to $\frac{1}{2}$ ".

Immediate shipment from stock

**T. H. LEWTHWAITE
MACHINE CO.**

(Est. 1890)

311 E. 47th St., NEW YORK



ARMSTRONG

TURRET LATHE and SCREW MACHINE TOOLS

Taking standard cutter bits, these permanent, multi-purpose tools extend the savings of the Armstrong System of Tool Holders to the production department. Costly delays and expensive tooling-up for operations on Turret Lathes and Screw Machines can now be eliminated. The greater production (higher speeds and feeds) of ARMSTRONG HIGH SPEED and ARMIDE (Carbide-Tipped) Cutters are available with savings of "all forging, 70% grinding & 90% high speed steel."

ARMSTRONG BROS. TOOL CO.

"The Tool Holder People"

308 N. Francisco Ave., CHICAGO U.S.A.

New York Sales Office: 109 Lafayette Street

A System of Tools

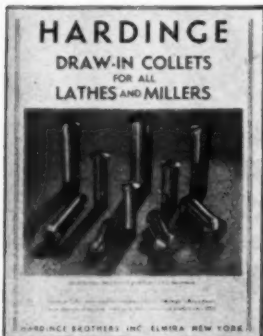
Plain Drill Holders
Heavy Duty Drill Holders
Turners
Straight Cutter Holders
Angle Cutter Holders
Multiple Cutter Holders
Facing Tools
Kaurling Tools.

Write for Catalog.

When using this "Layout Fluid" the scribed lines have a pronounced contrast against the dark background, relieving eye strain and allowing the workman to work accurately and easily to the desired layout. Nor does he have to polish the surface of the work. He simply wipes the surface fairly clean and brushes on. It dries instantly.

Full information may be secured by writing to the Dayton Rogers Manufacturing Company.

HARDINGE ISSUES NEW COLLET LIST



New Catalog No. 35
Copies Mailed Upon Request

With forty-five years' experience in the manufacture of Collets and co-operation on the part of machine tool builders, an interesting Collet list for Lathes and Milling Machines has been recently published by Hardinge Brothers, Inc., Elmira, New York.

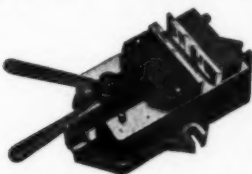
This publication, it is claimed, is the most complete of its kind to show the styles of Collets regularly adapted in the various makes of Lathes and Milling Machines manufactured in the United States. The many styles of Collets are listed in a comprehensive manner giving the round, hexagon and square capacities. The important general dimensions of the Collets are presented, which is recognized as a source of valuable information for purchasing, stockroom and engineering departments. With the list, it is no longer necessary to forward a sample to obtain a style of Collet used in any Lathe or Milling Machine, as identification is made easy.

The new publication shows the result of experience gathered since Hardinge Brothers, Inc., first entered the Collet industry with the manufacture of Collets for Watchmakers' Lathes in 1890 and who are, today, acknowledged as the largest source of supply for standard Collets used in Lathes and Milling Machines.

(Continued on Page 24)

Hartford Milling Vise

Power — Speed — Strength — Accuracy



Jaw width 5"
 Jaw depth 1¼"
 Maximum opening 3½"
 Weight 40 lbs

Power: Top eccentric handle furnishes tremendous binding power instantly.

Speed: Lower cam-faced handle gives immediate quick opening and return.

Strength: Steel parts are drop forged, hardened and ground—base is made of special iron. You can rely on the "Hartford" to stand up under hard usage.

Accuracy: All fitting parts are ground—alignment of jaws is absolutely certain.

Also made in the swivel-jaw type with hard or soft jaws, maximum opening 2¼".

Send for descriptive catalog illustrating its usefulness

We also Build Machinery on a Contract Basis and Design and Develop Special Automatic Machinery—Gears and Cams Cut to Order.

Hartford Special Machinery Co., 285 Homestead Ave., HARTFORD, CONN.

TAPPING DEVICES

HAVE BEEN OUR SPECIALTY FOR OVER 25 YEARS

**NOW THE NEW
 "PROCUNIER"**

**SENSITIVE
 HIGH SPEED**

**FRICTION DRIVE
 At Spindle Speed**

**TAPPING
 ATTACHMENT**

**FRICTION REVERSE
 At Twice Spindle
 Speed**

BALL

*Also other sizes
 and styles*



BEARINGS

*Write for our catalog
 with prices*

PROCUNIER SAFETY CHUCK CO.

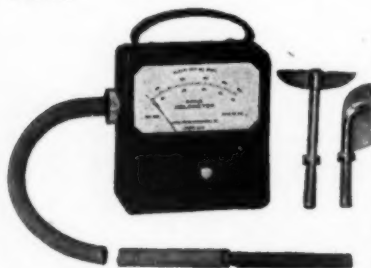
14 S. Clinton St.,

Chicago, Ill.

IMPROVED AIR VELOCITY METER

The Improved Boyle Velometer, offered by the Illinois Testing Laboratories, Incorporated, 150 West Austin Avenue, Chicago, Illinois, is a direct reading air velocity meter which gives accurate and instantaneous readings of the speed and direction of air motion measured in feet per minute.

It is quite similar in appearance to an electrical measuring instrument. The air enters through a port or a jet on the left side of the meter and leaves through the right side. The air passing through the meter actuates the galvanometer movement. To this movement is attached a pointer which moves over a scale graduated in feet per minute.



No mathematical calculations or stop watches are necessary to determine the velocity reading. A pointer locking button is provided to lock the pointer to retain the reading or when the instrument

is not in use.

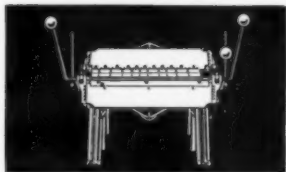
The Velometer is furnished in two types, each with a double range scale.

The Shutter Type, as the name implies, is furnished with a shutter for opening or closing the port for changing the range, and is not provided for tube attachment. This type is ideal for taking quick commercially accurate readings, such as in heating and ventilating and air conditioning work.

The Tube Type Velometer illustrated is similar in size and appearance to the Shutter Type. When used for the low range readings, the tube attachment is removed and the air enters directly through the port. For high range

(Continued on Page 26)

Chicago Steel Brakes



Over 30,000 in use.

Made in
all types and over 100
standard sizes.

Box and Pan Brake Suitable for Regular Bending
or Box Work Without Change of Adjustment.

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from smallest to $\frac{1}{2}$ " diameter either by NOISELESS
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Sizes to meet all needs—
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Spindles.

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don't forget to send
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The Grant Mfg. & Machine Co.
C. E. Station, Bridgeport, Conn.

readings, a tube attachment with a suitable jet is used. The air enters through this jet. As the tube is flexible the jet can be moved about as required, with the instrument held stationary if desired. With the Tube Type Velometer, accurate velocity readings of the discharge or suction of grilles, ducts, or other restricted and small openings can be easily and quickly obtained. The Tube Type Velometer, in addition to being exceptionally useful for heating and air conditioning service, fills a need in industrial plants for determining air movements in dryers, kilns, or other like equipment. Special scales and attachments can be built for unusual applications such as high velocities, high temperatures, and similar service.

"BURNI-SHAVE" FOR GEARS

The National Tool Company, Madison Ave. and West 112th St., Cleveland, Ohio, have developed the National-Cleveland (Simmons Method) "Burni-Shave" for burnishing and shaving gears in one operation. It is applicable to all gears—spur and spiral, internal and external.

The manufacturers make the following claims for the "Burni-Shave":

That by combining the burnishing with the shaving operation it automatically eliminates one step in production, reducing tool cost by displacing excess machinery, tools, etc.

That it will produce gears almost to the extreme accuracy required in ground master gears.

That it requires no new machinery, as it can be used on any gear tooth burnishing machine, or even with a fixture adapted to a milling machine.

That it has finished average size gears in less than 15 seconds, the reduction in operation and scrap meaning more perfect gears in the same working hours.

That it reduces to a minimum and practically eliminates the noise in automobile, truck and tractor gears and industrial transmissions.

The National Tool Company will be glad to furnish complete data upon request.

(Continued on Page 28)



WITTEK

AUTOMATIC
Roll Feeds

FOR PUNCH PRESSES

These feeds are easily attached to any size or make of press. Will feed from 0" to 24" per stroke. Made in single or double roll, also with straightener. Low in first cost—no upkeep. **WE MAKE REEL STANDS** for coil stock or wire to fit every job.

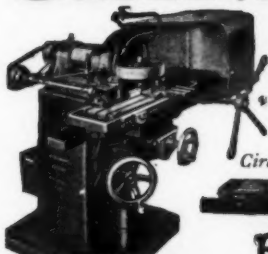
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Table travels 16" and 24"

For Production to Tool Room

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Work Bound
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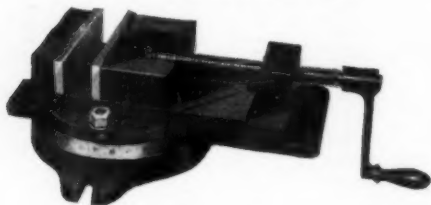
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GRINDER CHUCKS hold Abrasive Rings, 10" to 30" dia.

Flat Work
Grinder

THE GRAHAM MFG. CO., 70 Willard Ave.
PROVIDENCE, R. I.

NEW L-W SWIVEL BASE VISE



The L-W Chuck Co., 18 N. St. Clair St., Toledo, Ohio, have designed a new Vise suitable for use with milling machine, drill press, shaper or planer, which they claim gives exceptional value for the cost.

The holdown jaw, which has a $1\frac{5}{8}$ " bronze replaceable nut and steel jaws, is adjustable and clamps the work to its proper position. The graduated base can be used as plain or universal. The jaws, which open $7\frac{1}{4}$ ", have a width of $6\frac{1}{4}$ " and a depth of 2". The weight complete with crank is 75 lbs.

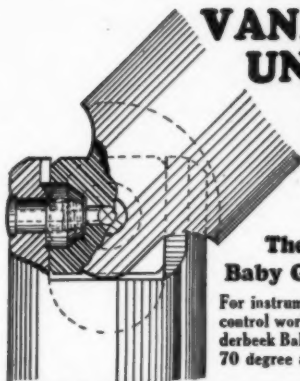
NEW MOTOR DRIVE UNIT

The W. L. Steege Machinery Co., 18 So. Clinton St., Chicago, announce an addition to their line of Universal Motor Drives.

Their New Drive is a simple well constructed unit, which is adaptable for any cone driven machine. The manufacturers claim it can be installed in a very few minutes. It is possible to change speeds of the machine by moving a convenient lever which adjusts the belt on the cone. It is built for heavy work and has only one moving part. The unit comes in either pedestal or bracket type. The bracket type fastens to the side of the machine.

The Manufacturer will be pleased to send complete details upon request.

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The GIANT with hardened and ground working surfaces for heavy duty.

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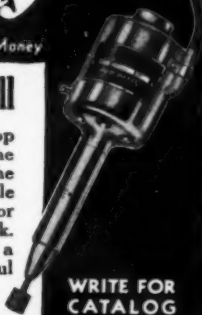
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SpeedWay Manufacturing Co., 1822 So. 52nd Ave., Cicero, Ill.

NEW EQUIPMENT TABLOIDS

**The manufacturers will be pleased to
send full information upon request**

The Foote-Burt Co., Cleveland, Ohio, have designed a line of Single-Slide Hydraulic Broaching Machines for quick changes from the manufacture of one part to another. Only the fixture and broach holder need be changed. For flat surfaces the broach can be designed to handle several different parts. This is a logical and valuable addition to their line of Duplex and Continuous Broaching Machines.

The Cincinnati Shaper Co., Cincinnati, Ohio, have added to their older line a series of smaller All-Steel Shears, with capacity for shearing 10 gauge mild steel in 8-ft., 10-ft. and 12-ft. lengths. The general design is the same as in their heavier machines. The advantages claimed are extreme accuracy with high production, low cost of maintenance and longer life of the knives.

The Hall Planetary Co., Philadelphia, Pa., have built a Double-Head Planetary Milling Machine, which machines both ends of a part simultaneously by the "Planamilling" or "Planathreading" method. The two head assemblies are fixed to the bed, but both eccentric bearing assemblies can move toward the center to bring them into working position.

The Eastern Machine Screw Corporation, New Haven, Conn., have developed a new style of H & G Die Head for the No. 0 Brown & Sharpe Automatic Screw Machine. The head uses inserted chasers, which are so inexpensive that they may be thrown away when dull and new sets substituted with practically no interruption in production and without costly adjustments.

The Producto Machine Co., Bridgeport, Conn., have developed a No. 125 cam-type Milling Machine for milling six locating surfaces on an automobile crankshaft preparatory to center turning on production lathes. It is fully automatic, and is designed to mill 100 crankshafts per hour, with one operator at each machine.



MENDES QUALITY DIAMONDS

Always Sharp

Reduce Grinding
Costs

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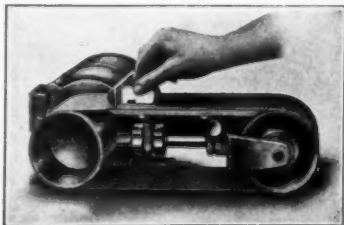
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SAVES A LOT
OF TIME—

Smoothing-up
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Small Work

Its' Handy



Its' furnished complete with Motor and Cord ready
to plug in your socket.

Lowest Priced Belt Surfer of Its Size.

WRITE

Production Machine Co., Greenfield, Mass.

New Equipment Tabloids—Continued

The Lincoln Electric Company, Cleveland, Ohio, announce a close-coupled gas-engine-driven "Shield-Arc" Welder for 300 ampere, 40 volt capacity. Due to the close coupling feature, the new unit is much more compact and of lighter weight than previous models. It is claimed that because of less vibration the engine operates at a high efficiency with a lower consumption of gasoline.

The Ganschow Gear Co., 1013-15 Washington Blvd., Chicago, Ill., is marketing a laminated gear for silent operation. The gears are made up of formed plates of herringbone construction, which interlock with each other. Each gear has a built-in oil reservoir. The cushioning flexibility absorbs vibration on peak loads or reverse rotation and lessens wear on the bearings and mating gear.

The Baldor Electric Company, 4357 Duncan Ave., St. Louis, Mo., have developed a line of ball bearing Buffers in both bench and pedestal types, in sizes from 1/3 h.p. to 5 h.p. They are powered by a heavy type ball bearing motor, which is dynamically balanced to eliminate vibration. Grease lubrication is necessary only about once a year.

The Rickert-Shafer Co., Erie, Pa., announce a self-contained motor-driven Bench Tapper in capacities for 3/16 to 5/16 inch in steel. It is furnished complete with motor, belt, switch and 6 ft. of cord. The transmission is by means of rubber V-belts.

Samuel C. Rogers & Company, 201 Dutton Ave., Buffalo, N. Y., are making a bench machine for the recutting and regrinding of the teeth of dull or wornout metal cutting saws from 2 to 12 inches in diameter. It is full automatic in operation and is made for belt or motor drive. It is claimed that small saws can be reconditioned entirely, and that the saw can be recut and reground automatically until it is entirely worn down.

Lewis-Shepard Co., 201 Walnut Street, Watertown, Mass., have just issued a new two-color folder on their extensive line of Lift Trucks, Lift Truck Platforms, Floor Trucks, Steel Storage Racks, Stackers, Portable Elevators, and many other new items of material handling equipment.



TANNEWITZ **24" Hi-Speed Band Saw**

SAWS NEARLY EVERYTHING

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1½ H. P. Direct Motor Drive.

Also 30"-36"-42" Sizes.

THE TANNEWITZ WORKS
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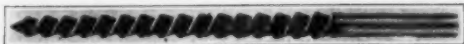
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THEY are usually known among mechanics as lathe mandrels, but they work equally as well on millers or grinders. They also will take a job with a square hole as well as a round one. *Write Us for Further Information.*

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ELECTRIC SAW BRAZING MACHINES, BUTT, WIRE, PORTABLE AND SPECIAL WELDERS

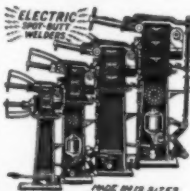
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Champion Expanding Mandrels

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The contents of each individual Stackbin are always accessible without disturbing the bins above or below.

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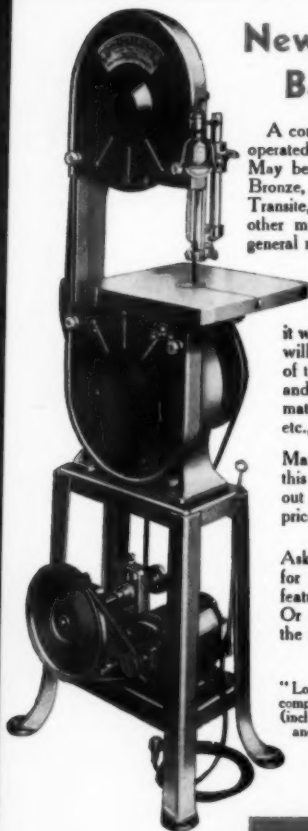
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Model 896

"Low Speed" Metal-Cutting Band-Saw Unit complete with steel stand, and countershaft Unit (including hangers, collars, countershaft, pulleys, and V-belts) without motor.

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Max. Distance, Table to Spdl. 17"

Drills to Center of Circle 14"
Takes Drills up to $17/32$ "
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Made
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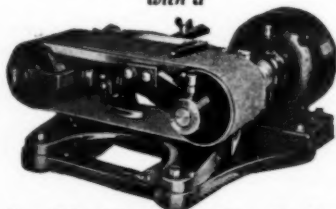
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But You CAN**



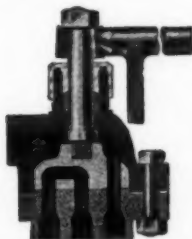
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Walton Tap Extractor

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Also Solenoid Operated**

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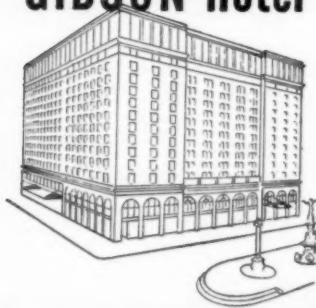
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A Universal Tool Grinder costs about 25%

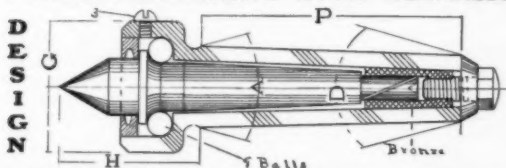
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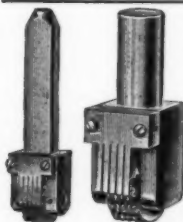
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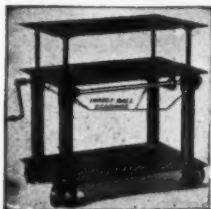
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If you will list below the new or used metal-working machines or machine shop equipment for which you are in the market, and mail it to us, we shall be glad to broadcast it to all of our advertisers. Replies will come from them, not from us.

But if you prefer that we put you in direct touch with the manufacturers of any particular machine tool or other metal-working equipment, let us know and we will endeavor to locate them for you.

Name

Address

We are in the market for

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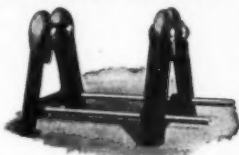
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Anderson Ever Ready Balancing Ways

Exceedingly Sensitive

Easy to Manipulate



Made in six sizes to balance anything that revolves from a crank shaft to a 24,000 lb. turbine rotor. They require no special leveling, no adjustment, and no centers.

Equipped with glass-hard spindles, chilled steel discs, and especially sensitive ball bearings, to give accurate, long time service.

"Swing"	20"	40"	60"	72"	96"	72"
Greatest distance bet. standards..	20"	30"	30"	66"	88"	20"
Capacity in lbs.....	1000	2000	2000	5000	10000	24000
Approx. shipping weight.....	45	90	150	350	650	
Code.....	Bend	Bid	Bis	Bib	Bem	

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For Light and Heavy Etching

With 24 Stages of Control.

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Send for circular giving complete data and details of this modern Instrument.



Built rugged for continuous work on the production line.

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Arbors and Collets

Standard Engineering Works, Pawtucket, R. I.

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Anderson Bros. Mfg. Co., Rockford, Ill.
Sundstrand Machine Tool Co., Rockford, Ill.

Band Saw Machines, for Metal

Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
Delta Mfg. Co., Milwaukee, Wis.
Tannewitz Works, Grand Rapids, Mich.

Bar Cutters

Buffalo Forge Company, Buffalo, N. Y.

Belt Lacing

Armstrong-Blum & Co., 315 N. Sheldon St., Chicago, Ill.

Belt Sanders, Portable Electric

Skillsaw Inc., 3317 Elston Ave., Chicago

Bending Machines, Hand and Power

Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
Buffalo Forge Company, Buffalo, N. Y.
Leathwaite Mch. Co., T. H. 311 E. 47th., N. Y.

Bins

Stackbin Corp., Providence, R. I.

Blowers

Clements Mfg. Co., 6650 Naragansett, Chicago
Meyer Blower Co., Wm. W., 1045 West Washington Blvd., Chicago, Ill.

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Clements Mfg. Co., 6650 Naragansett, Chicago
Skillsaw, Inc., 3317 Elston Ave., Chicago

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Foots-Burt Co., Cleveland, O.

Boring Bars

The Rigid Toolholder Co., Detroit, Mich.

Boring Heads

Flynn Manufacturing Co., Detroit, Mich.

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Dreln & Krump Mfg. Co., 7440 So. Loomis Blvd., Chicago, Ill.

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Baumbach Mfg. Co., E. A., 1812 So. Kilbourne Ave., Chicago

Bushings, Jig

Acme Industrial Co., 419 N. Carpenter St., Chicago, Ill.

Centering Machines

Sundstrand Machine Tool Co., Rockford, Ill.
Chicago Gear Works, 769 W. Jackson Blvd., Chicago, Ill.
Cushman Wheel Co., 1359 Altgeld St., Chgo.

Chains, Silent and Roller

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Cushman Wheel Co., 1359 Altgeld St., Chgo.

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Hensler Mfg. Co., 1638 No. Paulina St., Chicago, Ill.

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Chucks, Collet

Procurier Safety Chuck Co., 14 S. Clinton St., Chicago

Chucks, Drill and Tap

Hartford Special Mch. Co., Hartford, Conn.
Procurier Safety Chuck Co., 14 S. Clinton St., Chicago

Chucks, Quick Change

Procurier Safety Chuck Co., 14 So. Clinton St., Chicago

Chucks, Ring Wheel Grinder

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SpeedWay Mfg. Co., 1822 So. 52nd Ave.,
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Winterhoff Tool & Mchs. Co., Elkhart, Ind.

Drill Jigs, Special

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Chicago, Ill.

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Chicago, Ill.

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Delta Equipment Co., Milwaukee, Wis.

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SpeedWay Mfg. Co., 1822 So. 52nd Ave.,
Cicero, Ill.
Strand Co., N. A., 6001 N. Lincoln St., Chicago

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Hurke Machine Tool Co., Connecticut, Oh
Foots-Burt Co., Cleveland, O.

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Harrington Brothers, Inc., Elmira, N. Y.
Steege Machinery Co., 18 S. Clinton, Chgo.

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Chicago

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Chicago Gear Works, 700 W. Jackson Blvd.,
Chicago, Ill.

Glue Pots, Electric

Russell Electric Co., 328 W. Huron St., Chgo.

Grinder, Combination Disc

Winterhoff Tool & Mchs. Co., Elkhart, Ind.

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Classified Finding Index

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Av., Chicago

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Hartford Special Mfg. Co., Hartford, Conn.

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Reed Small Tool Works, Worcester, Mass.

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Steege Machinery Co., 18 B. Clinton, Chgo.

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Lathes, Manufacturing

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Sundstrand Machine Tool Co., Rockford, Ill.

Milling Machines, Precision Bench

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Milling Machines, Hand

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Standard Engineering Works, Pawtucket,
R. I.
Sundstrand Machine Tool Co., Rockford, Ill.

Milling Machines, Plain

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Standard Engineering Works, Pawtucket,
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Sundstrand Machine Tool Co., Rockford, Ill.

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Baumbach Mfg. Co., E. A., 1812 So. Kil-
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Pipe Vises

Ridge Tool Co., Elmhurst, Ohio

Pipe Wrenches

Ridge Tool Co., Elmhurst, Ohio

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Atlas Press Co., Kalamazoo, Mich.
W. H. Nicholson & Co., Wilkes-Barre, Pa.
Wilson, R. K., Buffalo, N. Y.

Presses, Power

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Bldg., Chicago, Ill.

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Dreis & Krump Mfg. Co., 7440 Loomis
Bldg., Chicago, Ill.
Lewthwaite Mfg. Co., T. H., 311 E. 47th., N. Y.

Production Tools

Genesse Mfg. Co., Rochester, N. Y.

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Armstrong-Bray & Co., 315 N. Sheldon St.,
Chicago, Ill.

Punch Press Feeds

Wittek Mfg. Co., 4309 W. 24th Place, Chgo.

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Armstrong-Bloom Mfg. Co., 341 N. Francisco
Ave., Chicago

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Armstrong-Bloom Mfg. Co., 341 N. Francisco
Ave., Chicago
Buffalo Forge Company, Buffalo, N. Y.
Lewthwaite Mfg. Co., T. H., 311 E. 47th.,
New York
Whitney Metal Tool Co., Rockford, Ill.

Punches and Dies

Lewthwaite Mfg. Co., T. H., 311 E. 47th., N. Y.

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Pyrometers

Illinois Testing Laboratories, Inc., 150 W. Austin Ave., Chicago
Russell Electric Co., 338 W. Huron St., Chgo.

Pyrometers, Portable & Stationary

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Russell Electric Co., 338 W. Huron St., Chgo.

Ratchets

Chicago Gear Works, 789 W. Jackson Blvd., Chicago, Ill.

Reamer Holders

W. H. Nicholson & Co., Wilkes-Barre, Pa.

Reamers, Combination Flute

Gammone-Holman Co., Manchester, Conn.

Reamers, Hand Expansion

Gammone-Holman Co., Manchester, Conn.

Reamers, Helical Taper Pin

Gammone-Holman Co., Manchester, Conn.

Riveters, Multiple Spindle

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Riveters, Pneumatic

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Riveting Machines

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Rod Cutters

Armstrong-Blum Mfg. Co., 841 N. Francisco Ave., Chicago
Lewthwaite Mch. Co., T.H., 311 E. 47th, N.Y.

Scraping Machines

Anderson Bros. Mfg. Co., Rockford, Ill.

Shafts, Flexible

Strand Co., N. A., 5001 N. Lincoln St., Chgo.

Shaping Machines

Osborne & Sexton Machy. Co., Columbus, O.

Shears, Hand

Armstrong-Blum Mfg. Co., 841 N. Francisco Ave., Chicago
Lewthwaite Machine Co., T.H., 311 E. 47th St., New York
Whitney Metal Tool Co., Rockford, Ill.

Shear, Power

Dreis & Krump Mfg. Co., 7440 Loomis Blvd., Chicago, Ill.

Shears, Slitting

National Machine Tool Co., Racine, Wis.
Dreis & Krump Mfg. Co., 7440 Loomis Blvd., Chicago, Ill.

Special Tools and Machinery

American Tool Works, Inc., Hartford, Conn.
Standard Engineering Works, Pawtucket, R. I.

Speed Reducers

Abart Gear & Machine Co., Cleveo, Ill.
Chicago Gear Works, 789 W. Jackson Blvd., Chicago, Ill.
Cullman Wheel Co., 1359 Altgeld St., Chgo.

Spot Welding Machines, Speed.

Eisler Engineering Co., Inc., Newark, N. J.

Sprockets

Chicago Gear Works, 789 W. Jackson Blvd., Chicago, Ill.
Cullman Wheel Co., 1359 Altgeld St., Chgo.

Straightening Machines

Whitney Metal Tool Co., Rockford, Ill.

Stud Setters

Procon Safety Chuck Co., 14 S. Clinton St., Chicago

Tap Extractors

Walton Co., Hartford, Conn.

Tap Holders

Procon Safety Chuck Co., 14 S. Clinton St., Chicago

Tapping Attachments

Procon Safety Chuck Co., 14 S. Clinton St., Chicago, Ill.

Tapping Jigs, Universal

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Tapping Machines and Attachments

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Procon Safety Chuck Co., 14 S. Clinton St., Chicago, Ill.
Whitney Metal Tool Co., Rockford, Ill.

Thermometers, Resistance Type

Illinois Testing Laboratories, Inc., 150 West Austin Ave., Chicago, Ill.

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Threading Tools

Armstrong Bros. Tool Co., 308 N. Francisco Ave., Chicago
Ridge Tool Co., Elyria, Ohio.

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Rigid Toolholder Co., Detroit, Mich.
Western Tool & Mfg. Co., Springfield, O.

Tools, Boring

Armstrong Bros. Tool Co., 308 N. Francisco Ave., Chicago

Tools, Lathe and Planer

Armstrong Bros. Tool Co., 308 N. Francisco Ave., Chicago

Classified Finding Index

Tools, Machinists'

Armstrong Bros. Tool Co., 308 N. Francisco
Av., Chicago

Tube Flanging Machines

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Universal Drill Jigs

Heuser Mfg. Co., 1638 No. Paulina St.,
Chicago, Ill.

Universal Joints

American Tool Works, Inc., Hartford, Conn.

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Detroit, Mich.
Bentley Machinery Co., 34 Church St.,
New York, N. Y.

Bernstein, Geo. M., 221 N. Elizabeth St.,
Chicago, Ill.

Bieser Mfg. & Mch. Co., Springfield, Ill.
Brown Machinery Co., St. Louis, Mo.

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Cincinnati Mch. & Supply Co., Cincinnati, O.

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Consolidated Machine Shops, 2852 Fulton
Chicago, Ill.

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Eastman Machinery Co., Cincinnati, O.

Elyria Heating & Mch. Co., Elyria, Ohio.
Kierman, Louis E. & Co., 1761 Elston
Ave., Chicago, Ill.

Kosley Machinery Co., E. L., 825 Rees St.,
Chicago, Ill.

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Goldman, Harry H., Detroit, Mich.

Goldner Mch. Co., 817 Lake St., Chicago
Hackett, J. Lee & Co., Detroit, Mich.

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McDonald Machinery Co., St. Louis

Marr-Gallbreath Mch. Co., Pittsburgh, Pa.
Meyer Blower Co., Wm. W., 1045 West
Washington Blvd., Chicago, Ill.

Midwest Equipment Co., Elm W. Lake St.,
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Mid-West Machine Tool & Supply Company,
Davenport, Iowa

Millon Machinery Co., Saginaw, W. S., Mich.
Morey & Co., 45 Mill St., Astoria, Long
Island, N. Y.

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York, N. Y.

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Ohio

O'Brien Machinery Co., Philadelphia
Ott Machinery Sales Co., Detroit, Mich.

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Pattison Supply Co., W. M., Cleveland, O.

Relevance Machinery Sales Co., Pittsburgh,
Pa.

Reynolds & Son, Geo. T., Providence, R. I.
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Victor Machinery Co., 128 S. Clinton Street,
Chicago, Ill.

Victor Machinery Exchange, 251 Center St.,
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White Mchry. Co., A. D., 108 N. Jefferson
St., Chicago

Wiglesworth Mch. Co., Cambridge, Mass.
Winterhoff Tool & Mach. Co., Elkhart, Ind.

Wolnick Machinery Sales, 21st & Marshall
Bldg., Chicago, Ill.

Valves, Foot, Lever & Solenoid

Nicholson & Co., W. H., Wilkes-Barre, Pa.

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Av., Chicago

Armstrong Bros. Tool Co., 308 N. Francisco
Av., Chicago

Graham Manufacturing Co., Providence, R. I.
Heuser Mfg. Co., 1638 No. Paulina St.,
Chicago, Ill.

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Martin Tool & Die Works, J. E., Springfield, O.

Vises, Machinists'

L. W. Chuck Co., Toledo, Ohio
Western Tool & Mfg. Co., Springfield, O.

Vises, Milling Machine

Graham Manufacturing Co., Providence, R. I.
Hartford Special Mch. Co., Hartford, Conn.

L. W. Chuck Co., Toledo, Ohio
Standard Engineering Works, Pawtucket,
R. I.

Vises, Shaper

Graham Manufacturing Co., Providence, R. I.
L. W. Chuck Co., Toledo, Ohio

Welding Machines, Electric Spot

Eisler Engineering Co., Inc., Newark, N. J.

Welding Machines, Resistance

Eisler Engineering Co., Inc., Newark, N. J.

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Mendes Cutting Factorias, Inc., 505 Fifth
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Chicago, Ill.

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Lowell Wrench Co., Worcester, Mass.

Wrenches, Socket Ratchet

Lowell Wrench Co., Worcester, Mass.

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Lists of Used and Rebuilt Machinery, either For Sale, Wanted, or For Exchange, set in uniform style, will be published in the Classified Section at the rate of 60 cents a line across the page, each issue, plus \$3.00 for name and address. Minimum charge, \$6.00. No display permitted.

Write directly to those offering the machines for sale, for prices and full descriptions. If what you seek is not advertised, use the blank enclosed to make known your wants in either new or used machinery and the publisher will pass them along to the advertisers.

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Miller, No. 4 Cincinnati vertical.	Shaper, 20" Hendey crank.
Planer, 24"x24"x8' Whitcomb.	Wood surface planer, 30" Whitney.

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Lathe, 22"x12' Lodge & S., q. c. g.	Press, No. 40 Swaine, arch.
Lathe, 24"x12' American.	Press, No. 42 Swaine, arch.
Lathe, 30"x14' Bradford.	Press, No. 50 Toledo, arch.

FOR SALE BY

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Drills, 1, 2, 3, 4 sp.; 9 sp. Pratt & W.	Walsh; No. 4 Consolidated.
Grinders, Besly, Nos. 8, 10; No. 4 Gard.	Presses, No. 82 Consolidated; No. 3P
Lathes, 24x12 Advance, t. a.; 22x12	R. & K.; No. 40 Crosby, b. g.
Amer.; 14x6 Hendey, t. a. collets;	Punch & s. H. & W. No. 52, m. d.
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Millers, No. 1 Dow pl.; 2A Garv. univ.	amp. Gibbs; Butt 110 amp. Toledo.
Hundreds of other tools to select from.	

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Dust collecting exhausters and ventilating fans.	
New—Rebuilt—Used.	

USED AND REBUILT MACHINERY

FOR SALE BY

The Jones Machine Tool Co.,

Front & Pike Sts., Cincinnati, Ohio

LATHES

12"x8' Sebastian, geared head.
18"x5' L. & S. sel. grd. hd., (2).
18"x6' L. & S. sel. grd. hd., (8).
18"x8' L. & S. sel. geared head.
20"x10' American cone head 2 c.
24"x10' American cone head 2 c.
32"x12' Boye & E., cone head 2 c.
36"x16' Lodge & S., 2 c., m. d.

PRESSES AND SHEARS

50 O. B. I. presses—all sizes.
Presses, No. 4 & 5 Cons. & R. & K. (6)
Press, American Can, plain & b. g.
Press, No. 5 L. & J., o. b. i., b. grd.
Press, Toledo gap frame, o. b. grd.
similar to No. 77, wt 11000 lbs.
Press, No. 164 Cons. dbl crank grd.

Press, No. 57 Toledo, 24" between housing, back geared.
Square shear, 10', 3/16" capacity.
Square shear, 54', 1/4" capacity.
Gear cutters, Nos. 3, 4, 13 B. & S.
Drill, radial, 3', 4' single pulley.
Drill, radial, 5' American tr. pur.
Grinders, No. 60 & 70 Heald.
Grinder, No. 1 Diamond surf., m. d.
Lathe, turret, No. 6 Foster pwr. fd.
Milling mchs., Nos. 2, 3 & 4 Cin'ti.
Milling mchs., No. 3 univ LeBlond.
Rolls, stght., 48" H. & J., m. d.
Tapers, No. 1 & 2X Garvin.
Welder, 20 k. w. National, 16" arms.
Welder, 25 k. w. Federal, 28" arms.
Welder, 100 k. w. Gibb, 24" arms.

JONES-BUYS-SELLS-TRADES

FOR SALE BY

Scott-Bansbach Machinery Co.,

4607 West 20th St., Chicago, Ill.

Air compressor, Daco No. 605P complete, motor and tank.....	\$ 85.
Air compressor, Curtis model A, 4 1/2 x 4 1/2, 8 to 16 cu. ft.,.....	50.
Air compressor, Gardner, 6x6 Duplex, cap. 49 to 80 cu. ft., 125 lbs.....	150.
Air compressor, Ingersoll, EK-1, 7"x6", horiz., cap. 92 cu. ft. with tank.....	150.
Automatic screw machines, B. & S., No. 00, 0, 2 and 2G.....	\$150 to 475.
Automatic screw machine, Gridley 4 spdl., "F", 1 1/2", 1 1/4" and 2 1/2".....	\$150 to 750.
Automatic screw machines, Gridley 4 sp., Model G, 9/16" & 3/4".....	200 & 500.
Automatic screw machine, Gridley, 4 1/2" single spindle.....	400.
Bolt cutter, 1" Landis, belt drive.....	125.
Drill, New Albany, h. s., motor drive, 110-60-1.....	100.
Drill, Avey, h. s., b. b., 14" swing, No. 2 M. T.....	100.
Drill, Leland Gifford, h. s., b. b., 14" swing, No. 2 M. T.....	125.
Drill, 2 spindle H. & W. h. s., b. b., 16" swing, heavy duty, class B.....	150.
Drill, 3 spindle Avey, h. s., b. b., 1/2" capacity, belt drive.....	200.
Drill, 3 spdl., Leland-G., 20" swing, hs., b. b., 12" travel, 26"x54" table.....	500.
Drill, 20" Canedy-Otto with back gears and power feed.....	85.
Drill, 24" Sibley sliding head, b. g. and p. f.....	125.
Drill, radial, C. O., No. 50, wall post type, 2 1/2 foot arm, hand feed.....	125.
Gear cutter, B. & S. No. 3, 36" for spur gears.....	200.
Gear hobber, No. 00 Pfauter, cap. 8"x6"x10 DP.....	150.
Grinder, Gardner No. 4 disc, 23" dia. with press and tables, bail brg.....	200.
Grinder, Ransom disc, 26" diameter with press and tables.....	150.
Grinder, Heald 8" rotary surface, magnetic chuck, power feed.....	75.
Grinder, Heald, No. 65, cylinder, 16" spindle and fixture.....	350.
Hammer, No. 1 1/2 B. High Speed belt drive, 1/2" capacity.....	60.
Hammer, No. 3A High Speed belt drive, heavy duty, 3/16" cap.....	150.
Hammer, No. 3 A, H. D., motor dr. with motor, 220, 60, 3, 5/16" cap.....	200.
Hammer, No. 4 A, High Speed belt drive, 1/2" cap.....	200.
Hammer, No. 5A High Speed, motor shelf, 1/2" capacity.....	275.
Hammer, 300 lb. board drop.....	250.
Lathe, spinning, Bliss, 24" swing belted motor drive, 220, 60, 3.....	200.
Lathe, 15"x6' South Bend, semi quick change with chuck.....	175.
Lathe, 18"x6', Canada, q. c. d. b. g., 2 chucks.....	200.
Lathe, 16"x6' American, quick change, pan bed and chuck.....	400.
Lathe, 16x8 Hendey, q. c., taper attachment and chuck.....	450.
Lathe, 18"x8' Davis, d. b. g., q. c., heavy duty.....	450.
Lathe, 20"x8' Sebastian Gold Seal q. c., d. b. g. with chuck.....	450.
Lathe, 30"x13' H. S. & G. heavy duty, q. c., d. b. g. 16,000 lbs.....	800.
Lathe, sliding gap, 28-48"x12' Harrington, plain change.....	400.

USED AND REBUILT MACHINERY

FOR SALE BY

West Penn Machinery Company

1208 House Building,

Pittsburgh, Pa.

Air compressors, 30 to 2500 cu. ft.
 Bor. mills, 24" & 42" Bullard New Era
 Bor. mill, 36" Bullard, side hd. s.p.d.
 Boring mill, 42" Bullard, 2 heads.
 Boring mill, 48" Gisholt r. p. t., 2 hds.
 Boring mill, 72" Niles, 2 heads, m. d.
 Boring mill, 72" Cinc., 2 hds. s. p. d.
 Boring mill, 96" Cinc., 2 hds. m. d.
 Boring mill, horiz. 64" Niles, fl. type.
 Brake, 7' x 10 ga. Chicago, m. d.
 Brakes, 3' & 10' x 13/16" Chicago, m. d.
 Brake, hand, 10' x 18 ga. Chicago.
 Brake, No. 194 Chgo., 8' x 10 ga., b. d.
 Buffer, Valley b.b., dbl. end., 3 h. p.
 Bulldozers, Nos. 2, 4, 6, 9, 28, & 30.
 Cranes, Electric Traveling.
 Crane, crawler, gas, No. 3 Nor'wes.
 Draw bench, 150,000 lb. Stand, m. d.
 Drill, radi. 4' Amer. trip. pur., m. d.
 Drill, radial, 4' Prentice, t. a., b. d.
 Drills, rad. 4', 5' & 6' Cinc.-Bick, m. d.
 Drills, radial 4' & 6' Dreses, m. d.
 Drill, Baker, table 23' x 17", s. p. d.
 Drills, upright 16" to 36"
 Filing machine, No. 406 Oliver m. d.
 Flanger, McCabe, 1/2" capacity, dies.
 Forging mch. 1 1/2" Acme, st. tr. b. d.
 Furnace, No. 152 Rockwell rot. hard.
 Gear cutters, 11", 18" & 24" Gleason.
 Gear cutter, spur, D.-S. cap. 2 1/2" x 3 1/2"
 Gear cutter, spur, 36" x 10" Newark.
 Gear tester, Bevel, 90" Gleason.
 Grinder, crank, No. 4A Landis spec.
 Grinder, die, No. 101 Bridg. m. d.
 Grinder, disc, No. 8-20" Besly, b. d.
 Grinders, 8" Black & D., d. e., m. d.
 Grinder, knife, 216" Bridge, 26" wheel
 Grinder, knife, 60" Bridgeport, m. d.
 Grinder, surf., Walker 26" x 9", mag. ck.
 Grinder, surf. 42" Spring, tbl. 15 x 84"
 Grinder, sur. 14" Pratt & W., m. d.
 Grinder, surface, No. 16 Blanchard.
 Grinder, surf. Diamond, table 48" x 16"
 Grinder, No. 72 Heald sizematics.
 Grinder, tool & cut., No. 2 Walker.
 Grinder, Univ. No. 2 Brown & S.
 Hammer, Blacker, power, 35-lbs.
 Hammers, Nos. 3B, 3-B, 4B, Nazel.
 Hammers, steam, 600 lb. to 6000 lb.
 Hammers, atm. dr. 1500 to 10000 lb.
 Header, No. 2 Wat. Far., o. d., tr. st.
 Jig borer, Swiss m. d., No. 5.
 Lathes, 14" x 5' 6" Mulliner, q. c. g., b. d.
 Lathe, 16" x 6' LeBlond, q. c. g., d. b. g.
 Lathe, 21" x 10' So. Bend, q. c. g., m. d.
 Lathe, 24" x 12" American, q. c. g., b. d.
 Lathe, 24" x 16" Bridgeford, g. hd. m. d.
 Lathe, 42" x 23" Pond, grd. hd., d. c.
 Lathe, turret, No. 6 Warner & S.
 Lathe, turret, 18" Libby, m. d.
 Lathe, turret, 24" Steinle, 6 1/2" hole.
 Lathe, turret, 34" Gisholt, b. d.
 Lathes, tur. No. 3-A W. & S. (2).

Lysholm tables, 72" x 30".
 Miller, pl., No. 34 Ohio, tbl. 13 1/2 x 50".
 Miller, pl., Nos. 3 & 5 Cinc., s. p. d.
 Miller, pl., No. 5B hvy. B. & S., s. p. d.
 Miller, rotary, 40" Ohio tilted, m. d.
 Miller, univ. Cinc. tbl. 56" x 13 1/2" m. d.
 Motors, a. c. & d. c.
 Nut mche., Wat. Far. 1/2" cold. b. d.
 Pickler, 4 arm Meata, 10" radius.
 Pipe mches., 4", 6" & 8" Oster.
 Pipe mchs., 6" & 12" Williams, m. d.
 Planer, 56" x 12" Detrick & H., m. d.
 Planer, o. s., 48" x 48" x 16" D. & H. m. d.
 Pl., 56" x 48" x 12" Det. & H. rev. m. d.
 Press, cam. No. 69N Bliss, dbl. act. inc.
 Press, o. b. i. Bliss, Nos. 18, 19, 20.
 Press, No. 55 Tol. s. s. 2" st. bed. 20 x 19
 Press, No. 57-S Tol. 6" st. bed 32 x 32.
 Presses, Nos. 57, 57 1/2, 58 1/2 Toledo grd.
 Presses, trimming, United, m. d.
 Press, No. 64 Cons. 17" x 17", str. 4 1/2".
 Press, No. 59 Toledo, 8" str., b. d.
 Presses, hyd. 100 & 200-ton Oilgear.
 Press, hyd., 400-ton Robertson, m. d.
 Press, No. 96-A Toledo, d. c. 5" str.
 Press, No. 6 Bliss dbl. crank, 6" str.
 Press, screw, No. 57 Niagara.
 Punch, hand, Shatz, bar and ang.
 Punch & s., No. 6 L. & A. 1/2" thru 1 1/2"
 Punch, EF Cleveland, 36" thit., 1 1/2"-1"
 Punch, mult., No. 5 H. & J. 10".
 Riveters, air, hammer, spinning.
 Rolls, angle bending No. 1 Champion
 Rolls, bending, 12" x 1/2" H. & J. b. d.
 Roller, thread, Nos. 10, 30, 40 W.-F.
 Saw, cold, No. 6 Coch.-Bly, s. p. d.
 Saw, cold, 48" Newton, m. d.
 Saws, friction, Nos. 2, 3 & 4 Ryerson.
 Saw, hack, 13" x 16" Peerless, m. d.
 Scale, sheet bundling, 2500 lbs.
 Screw mchs. Nos. 52, 53, 55 Nat. A.
 Shaper, vert., Jones 10" stroke, m. d.
 Shapers, 16", 20", 24" & 36" G. & E.
 Shaper, 24" Flather, b. g., m. d.
 Shears, alligator, 1 1/2", 2", 3" & 4".
 Shear, allig. No. 6 Mesta, 6" sq. m. d.
 Shear, angle, 6" x 6" x 1" H. & J.
 Shear, bevel, Lennox 1/2", b. d.
 Shears, foot, 30" and 36" Pexto.
 Shear, sq. No. 196-F Nia 8' x 18 ga.
 Shear, guil. No. 5 H. & J. 4" sq., m. d.
 Shear, rot., 30" Quick, cap. 3-16" b. d.
 Shear, square 8' x 14 ga., Ohl. b. d.
 Shear, sq., 132" x 16 ga. Canton, h. d.
 Slotters, 6" Newton, 8" & 21" Betts.
 Straightener, 1", 1 1/2", 4" rd. Abramson.
 Straitner, No. 2 K. & R., cap. 1 1/2".
 Tapping machine, vertical 1 1/2" Baker.
 Testing mch., Brinnell hard., type A.
 Upsetters, 1" to 6".
 Welder, arc, 200 amp. Lincoln, port
 Welder, butt, Tay.-Winf., 1/2" cap.
 Welder, spot, 40 k. w. T.-G., 2 pcs. 1/2".

USED AND REBUILT MACHINERY

FOR SALE BY

The O'Brien Machinery Co.,

113 N. Third St., Philadelphia, Pa.

Boring mill, 72" Bullard vert. 2 hds.
Boring mill, 3" universal horizontal.
Column facer, 14" Espen-Lucas.
Drill, 3 spd. Edlund b. b. sensitive,
power feed.
Grinder, 10"x32" Landis, self con-
tained, plain.
Hammer, 800 lb. Erie, steam forging.
Hammer, 1100 lb. NBP. steam forg.
Hammer, 2000 lb. Chambersburg
double frame, steam.
Keyseater, No. 2 Baker, 2" cap.,
belt drive.
Lathe, 27"x12' L. & S. geared head.

Lathe, 36"x44 Bridge, bor. never used.
Lathe, 42"x28" Fay & Scott b. dr.
Miller, No. 4 Cincinnati universal,
belt driven, table 57"x14".
Miller, No. 4 Cincinnati vertical,
single pulley drive.
Pipe machines, 2, 4, 6, 8 and 12"
belt and motor drive.
Punch, beam, type IG Clev., 24" bms.
Punch, No. 3 Southwark 4x4", mtr.
Shapers, 14, 16, 20 & 24" various makes
Shear, No. 5 H & J. s. e., 24" blades.
Slotter, 12" Dill, belt drive, all
power feeds.

FOR SALE BY

McDonald Machinery Co.,

1535 N. Broadway, St. Louis, Mo.

Bolt mchs., Landis & Acme 1 1/2".
Boring mill, Lucas No. 21 horizontal.
Boring mills, Barrett 5" bar horiz.
Drills, Cin-Bickford 3' & 3 1/2' radials.
Gear, cutter, G. & E. 60" m. d.
Gear hobber, G. & E. 24".
Grinders, B. & S. No. 2 surf. & univ
Grinder, P. & W. 14" vert. surf.
Grinder, B. & S. No. 13 mtr. dr.
Ironworkers, Buffalo No. 0 univ.
Keyseaters, M. & M. No. 2.
Lathes, F. & M. 60"x26' bed; LeBlond
21"x18', q. c. g.; 50 others in stock.
Milling machines, B. & S. No. 5, vert.
Milling mchs., B. & S. No. 1 1/2 Cinc.
No. 1 1/2, Hendey No. 1-B, Kemp.
No. 3; Ohio No. 29; vertical slott.

attch., all universal; Kemp. No. 1,
LeBlond No. 3-H; Brown & S.
No. 3-B, s. p. d., Brown & Sharpe
No. 3, all plain, Cincinnati 12"
Mfg.; Milw. No. 3-B & No. 1-A s.
p. d. plain; Cin. No. 3-Spl., s. p. d.
Punch press, d. c. grd., 79" between
uprights, 5" str., wt. 38,000 lbs.
McD. No. 7 o. b. l., geared.
Shapers, G. & E. S. & M., Cin., Ohio,
American, Steptoe, Queen City,
12", 16", 18", 20", 24" and 26"; S. &
M. 28", s. p. d.
Square shears, Niag. 62" No. 18 ga.
Turret lathes, W. & S. No. 2A univ.
Turret lathes, Libby 18" geared
head universal, Gisholt univ.

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

1211-1223 Hadley Street,

St. Louis, Mo.

Air compressor, 12"x10' Chgo., belted
Bar shear, 5"x4".
Bolt threaders, 1" & 1 1/2" Landis.
Boring mills, 36", 42", 60" & 72".
Bulldozers, No. 3 and No. 4.
Drill, 1-spindle Avey.
Drill, 3" Mueller radial.
Drill, 6" arm American radial.
Grinder, 12"x60" Landis universal.
Grinder, 12"x36" Thompson univ.
Grinder, No. 60 Heald cylinder.
Lathe, 16"x7' P. & W., geared head.
Lathe, 16"x9' Lehman.
Lathe, 26"x26" American.
Lathe, 36"x27" American quick ch.
Lathe, 28"x16" Lodge & Shipley.
Lathe, 28"x8" Walcott.
Lathe, 18"x7" and 9" Lehman.
Lathe, 18"x12" South Bend.

Miller, No. 2 Brown & Sharpe, pl.
Miller, Ingersoll slab, 27"x23"x14"
bed, 4 heads, motor drive.
Pipe machines, 4", 8", 12" & 16".
Planer, 60"x48"x10' Gray.
Press, No. 24 Toledo cam drawing.
Press, No. 59 Niagara grd. tie rod.
Press, No. 723 Toledo cam drawing.
Punch, No. 14 W. W., 12" throat.
Punch, two 20" throats, cap. 1" in 1".
Pmnc & shear, Pels combination.
Sand sling, Beardsley & Piper.
Shapers, 12, 16, 18, 20, 24 and 26".
Shear, circle, No. 310 Niag. 48" thr.
Turret lathes, No. 3A W. & S., 8"
hole, motor drive; No. 2A W. S.;
21 & 26" Steinle; Gisholt 36".
Wheel presses, 48" & 70" hydraulic.

USED AND REBUILT MACHINERY

FOR SALE BY

The E. L. Esley Machinery Co.

Telephone Lincoln 6320

831 Rees St., Chicago

Boring mill, 24" Bullard, prod. type.
Drill, radial, 5' Cincinnati-Bickford.
Lathe, 18"x8" Monarch, motor in leg.
Lathe, 16"x8" American, motor in leg.
Miller, No. 13-B, B. & S., mtr. dr.
Planer, 30"x30"x8" Cleveland, O. S.

Planer, 52"x48"x12' Cleveland, 3 hds.
Press, No. 3-B Bliss, toggle draw.
Saw, 12"x16" Peerless.
Shear, 42" Stoll, gap, 16 ga.
Turret lathe, 4A W. & S., univ., m. d.
Wheel press, N. B. P., 400 ton.

FOR SALE BY

Marr-Galbreath Machinery Co.,

55 Water St., Pittsburgh, Pa.

Quality Not Reflected in These Low Prices.

Air comp., 12"x10" Chgo., a. c. mtr.
Bender & straightener, No. 4 H. & J.
Blowers, Buffalo Nos. 3E & 4E,
1/60/220.
Blower, No. 5 North American,
motor 3/60/220.
Boring mill, No. 0 G. & L., 3 1/2" bar.
Boring mill, 30" Colburn, tr. hd.
Boring mill, 36"-44" N-B-P., sh. m. d.
Brake, pan, 5' Chgo., 14 ga., hand.
Brake, steel, Chgo. 8"x14 ga. b. d.
Brake Keene toggle, 10"x20 ga.
Die sinker, No. 3 P. & W., r. t.
Drill, radial 2 1/2" Fosdick gb., s. p. d. 984
Drill, radial Cin-Bick. t. a., m. d., 3 1/2".
Drill, 20" Barnes, all geared.
Engine, gas, 55 h. p. West. vert.
Engine, Diesel 166 h. p. DeLaVergne
Engine, Diesel, 120 h. p. vert. 4-cyl.
Furnace, gas tempering, 10x10", pot.
Gear cutter, 18" Newark.
Gear cutter, (Pinion) 1x1" S. & C.
Generator, 125 k. v. a. 3/60/220/900.
Generator, 50 k. v. a. 3/60/220/1200.
Grinder, 7 1/2 h. p., U. S. dbl. end, 3/60/440
Hack saws, No. 5 Marvel, auto. fd. (2)
Hammer, 30 lb. United, power.
Hammer, 100 lb. Mayer, belt or m. d.
Hammer, 200 lb. Bradley helve.
Hammer, No. 2B & No. 4 B Naxel,
motor drive.
Hammer, 800 lb. Erie s. f. steam.
Hammer, 1000 lb. Chbg. steam drop.
Header, cold 3" Waterbury-F.
Hoist, chain, 5 T. Y. & T. triplex.
Keyseater, 24"x2 1/2" Morton.
Lathe, 24"x16" LeBlond, 6" raising
blocks, chuck.
Lathe, 18"x8" Rahn-L., q. c. g., t. a.
Lathe, 26"x12" Bridgeford, t. a.
Lathe, 26"x16" Bridgeford g. h., t. a.
Lathe, 26"x8"x9" centers, McCabe.
Lathes, 14" & 16"x6" LeBlond, q. c. g.
Lathe, 36"x16" g. h. Amer., t. a., m. d.
Lathe, 20"x8" Hendey, t. a.
Lathe, 14"x19" Fay automatic.
Magnetic chuck, 14"x40" Heald.

Miller, plain, No. 2A, Hendey, s. p. d.
Miller, univ., No. 2 Clev., s. p. d. comp.
Miller, universal No. 14 Becker.
Miller, plain, No. 2 heavy Ohio.
Miller, No. 4 Ohio, table 101".
Miller, plain No. 2-B Milw. m. d.
Milling & keyway att., No. 5 So. B.
Pipe machine, 8" Jarecki.
Presses, o. b. i., 18, 19, 21 Bliss.
Press, No. 305 Bliss TR., 6" str., m. d.
Press, Arch, No. 3A Mossberg.
Press, Arch, No. 3A Mossberg dial
feed, also roll feed, (3).
Press, D. C. No. 138A Stoll, 3" stroke.
Press, embossing 50-ton Ferracute.
Press, horn, No. 2 Michigan.
Press, horn, 42-h. p. Toledo.
Press, screw, No. 87 Niagara.
Press, Wheel, 60-ton, 34" W-S.
Punch, SE., 24" tht. 4"x4" m. d.
Punch, SE., 36" tht. 1 1/2"x1 1/2" m. d.
Punch & shear, Pels tr. comb., 1"x1 1/2".
Punch & shear, No. 52 Beloit.
Punch & shear, s. e., No. 6 L. & A.
Punch & shear, s. e., No. 4 L. & A.
Punch & shear, d. e., cap 1 1/2"x1", m. d.
Riveter, No. 5A, Hi-Speed, m. d.
Rolls, 10"x3" U. S. Forming.
Rolls, form., 38"x3" Pexto No. 416.
Saw, cold, Espen-Lucas, 7" rds.
Shaper, 16" Ohio, crank b. d.
Shaper, 20" Cincinnati, motor dr.
Shaper, 20" G. & E., "H-D", m. d.
Shaper, 21" Smith & Mills.
Shaper, 24" G. & E., "H. D." m. d.
Shaper, 24" P. & J., "RT." m. d.
Shear, angle, 6x6x1 1/2", H. & J. No. 2,
mounted on turntable, for m. d.
Shear, plate, 72"x1 1/2" cap. Bertsch,
24" gap, motor drive.
Shear, slitting, No. 24-S Buffalo, 1".
Shear, gap, 42"x1 1/2"x16" gap.
Tapping chucks, 3/16": 1" and 2".
Testing mach., 100-ton Olsen, comp.
Turret, 2"x24" J. & L. chuck.
Turret, lathe 24" Gisholt, 6 1/2" m. d.
Welder, arc, 200 amp. Lincoln, 3/60.

Partial List. Get Our Complete Stock List.

USED AND REBUILT MACHINERY

FOR SALE BY

Segal Machinery Co., - - - 810 W. Lake St., Chicago, Ill.

Air compressors, all sizes. Drill, 4' Bickford, s. p. d., gear box. Grinder, No. 60 Heald internal, cyl. Lathe, 16x6 L. & S. q. c. g., t. a. Screw machine, No. 4 Warner & Swasey, geared friction head. 16x14 and 10x14 Ingersoll-Rand compresso, 600 cu. ft. with unloader.... \$125.	Lathe, 20x12 Monarch, q. ch. gear. Lathe, 24x10 Hamilton, fully equip. Miller, No. 4 Fox univ., s. p. d. Shaper, 24" Milwaukee, b. g., sw. v. Shaper, 24" Cincinnati, cone.
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FOR SALE BY

Reliance Machinery Sales Company

1405 Brighton Place, N. S. - - - Pittsburgh, Pa.

Brake, No. 205 Chicago, 10'x3/16", motor 3-60-220. Bulldozer, No. 9 Williams-White. Drill, 6 spdl. Barnes, No. 2 m. t. Drill, 4 spdl. Colburn No. 4. Drill, radial, 3 1/2' Mueller, s. p. d. Hoist, elec. 3 ton Shepard, a. c. Lathe, 18"x8' L. & S. pat. hd., 230 v. Lathe, 48"x20' Betts-B., a. c., m. d. Miller, No. 2A5 Milwaukee, double over arm, single pulley.	Miller, 30"x10' Newton planer type, adjustable rail. Miller, No. 2 1/2 Rockford, cone. Miller, vert., No. 5-C Becker. Presses, Nos. 3 1/2 & 4 Toledo, o. b. i. Press, Perkins dbl cr., 24" bet. hsg. Punch, L&A 1" thru 1 1/2", 24" tht. Saw, 13x16" Peerless Hi-Spd., m. d. Shears, alligator, 1 1/2 to 4" sq. cap. Shear, 11'x18 ga. Canton. Shaper, 24" Cincinnati, cone.
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FOR SALE BY

Morris Chuck Co., - - - 4833 Beaubien St., Detroit, Mich.

MILLING MACHINES.

No. 3 LeBlond plain. Pratt & Whitney, Lincoln type. No. 1 1/2 Kearney & Trecker. No. 5B Becker vertical. No. 2 Oesterlein plain.	Steptoe hand mill. No. 1 Bristol hand mill. Gooley & Edlund mill. No. 00 Brown & Sharpe hand.
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LATHES.

17"x8' LeBlond production. 18"x8' Walcott. No. 4 Pratt & Whitney turret.	No. 1 Warner & Swasey turret. No. 4 Warner & Swasey turret.
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MISCELLANEOUS.

Drill, 20" Weigel. Drill press, Barr No. 2 spindle.	Drill press, 22" Aurora. Grinder, 8" Heald rotary.
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FOR SALE BY

Midwest Equipment Co., - - - 628-30 W. Lake St., Chicago, Ill.

Air compressor, 9x8, I. R. compl. Air compressor 19x12x16, I. R. compl. Grinder, universal, B. & S., No. 2. Grinder, No. 2 B. & S. surface. Grinder, No. 6 Gardner, b. b., 26" discs. Grinder, Cinc. No. 1 tool & cutter. Lathe, 17x8 Sidney, l. c. g., complete. Lathes, "Catact", 1 1/2 and 3" cap. Lathe, 14x6 Sidney, quick ch. gear. Lathe, 24x10 Walcott, q. c. g., comp. Miller, No. 5 B. & S. plain. Miller, No. 1 Kemp Smith pl., comp. Miller, Kemp Smith No. 3, vert. att.	Miller, No. 2 Becker, vertical. Punch press, No. 4 Walsh, o. b. i. Punch press, No. 3 Robinson, o. b. i. Radial drill, 3' Cincinnati Bickford. Screw machines, No. 2 B. & S. automatic with slotting attachment. Screw machines No. 00 and No. 0 Brown & Sharpe, automatic. Screw machines, No. 4 Warner & S. Screw mchs., Nos. 4 & 3 Foster, w. f. Shapers, 14", 16", 20" and 24". Shear, Quickwork, pwr. dri. 14 ga. cap. Welder, arc. 300 amp. Wilson, m. d.
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Planers, Lathes, Screw Machines, Air Compressors, Woodworking Machines.

USED AND REBUILT MACHINERY

FOR SALE BY

Columbia Machinery Co., 130 E. Columbia St., Fort Wayne, Ind.

Automatics, No. 2 and 00 B. & S.
Air compressors, 9x9, 6x6 Curtiss.
Grinders, 10x36 Landis, 6x32 Norton
Lathes, No. 4 & 2A Warner & S.
Lathes, 13x20 Adams Short Cut.

Lathe, Wolcott, q. c., c. d.
Miller, No. 14 A B. & S. univ. m. d.
Miller, Nos. 2 & 3 Ryerson pl. s. p. d.
Forcing press, 15 & 30 ton Lucas, md.
Press, C5 Ferracute, cheap.

FOR SALE BY

Brown Machinery Co.,

2333 N. 9th St., St. Louis, Mo.

Brake, 8' Chicago, cap. 10 ga., m. d.
Brake, 8' 16 ga. Whitney-Jen., new.
Broach, No. 1 LaPointe, sgl. spdl.
Drills: 24", 26" and 32"; No. 66-D
Moline 4-spindle Hole Hog.
Drill, Allen B., single spindle, m. d.
Drill, Demco b. b., m. d.
Grinders, cylindrical, 12x36" Modern;
10x36" Norton.
Grinders, disc, No. 6-20 Besly; No.
220 Badger, automatic.
Grinders, sur., 36" P. & W.; 8" Heald.
Groover, power, 6' horn.
Lathes, 30" Blaisdell, 28" Harrington
gap, ext. bed; 26" Putnam, taper
att., 18" & 16" Lodge & Shipley;
16" & 14" Monarch; 7"x6" Lo-swing.
Lathes, tur., Wood No. 4; 16" Gisholt.
Millers: No. 2 Hendey-Norton, univ.;
slab, 36"x36"x8" Ingersoll; No. 3
Fox; No. 4 Hendey Lincoln;

American No. 14 plain.
Planer, 42x42x10 Pond.
Planer, 24"x24"x6" S. & S.
Press, No. 73 Swaine, s. s.
Press, No. 7 Zeh & Hahneman, s. s.
Nos. 1, 3, 4 Loshbough-Jordan.
Presses, o. b. i. Nos. 5 & 6 Consoli-
dated comb. geared; No. 20 Bliss.
Punch, No. 20 Excelsior deep throat.
Punch, Cleveland C in 4"; Rock
River Style L in 4".
Punch & shear, No. 9C Beloit in 4".
Punch & shear, L. & A. 4" cap.
Riveter, No. 5A High Speed, 4".
Shaper, 24" Ohio; 20" Queen City.
Shaper, 20" Columbia.
Shear, 50" Excelsior, gap 10 ga. cap.
Shear, 4" Lennox bevel.
Threaders: 4" Geometric; National
1 1/2" double head.
Welders, 20 k.w. Agnew; 8 k.w. Dyer.

FOR SALE BY

Ott Machinery Sales Co.,

2539 Woodward Ave., Detroit, Mich.

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Acme No. 54; New Britain No. 452
& 652; Pratt & Whitney 1"x18".
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5" bar; Bullard New Era 24 & 42";
Niles, B. P. 36/44".
Drills, Avey 4-spdl. No. 2; Fosdick
1-spindle No. 4, power feed.;
Mueller, 4' plain radial.
Elec. h. s. furnace, Hoskins 12x8x16".
Engraving machines, Keller, No.
BG482 and 724.
Gear shapers, Fellows Nos. 6, 61 &
615; Fellows Nos. 7 & 75 h. s.;
Gear generators-Gleason 8" mg. st.
bevel; Gleason 15" spiral bevel.
Grinders, B. & S. No. 10 & 32 s. p. d.;
Norton, No. B-81, crank pin;
Abrasive surface No. 33 Walcott
2-wheel gear tooth; Wilmoth-
Marmon No. 1 universal.
Hammers, Billings & S. 1200 lb. bd.
drop; Chambersburg 1600 & 2500 lb.
fig borers, No. 3A Pratt & Whitney.
Lathes, 14"x6" Hendey g. h.; 16"x6"
Flather; 16/28x10 Hamilton, cone;

16"x16" Hamilton, g. h.; 24"x12"
Prentice, g. h.; 36"x20" Pittsburgh,
g. h.; 34"x36" Acme turret, g. h.
Milling mchs., No. 12 Kempsmith
Mfg.; No. 4-B Becker vert.; No. 3
B. & S. vert.; No. 3-A hvy. B. & S.
univ.; No. 2 Cin'ti hi-power plain;
No. 3-B Milwaukee plain, m. d.;
No. 4 LeBlond plain, cone.
Thread mills, No. 6 Lees-B. a. m. d.;
12"x120" Pratt & Whitney.
Planers, Cin'ti 30x30x8' 1-hd. m. d.;
Cin'ti 48x36x8' 2-heads, a. m. d.;
Gray 60x60x20' 4-heads, a. m. d.
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racute DG53 & 54; Bliss, a. s., s. c.
No. 48, 79 1/2 & 514; Toledo, s. s., s. c.
No. 59 1/2; Toledo, s. a., d. c. No. 92B.
92E, 92 1/2 D, 94 1/2 F; Bliss, s. s., d. c.
No. 3C & D, No. 4C, No. 5C & D;
Bliss, a. s., d. c. No. 7D & No. 8,
52"; Bliss, gap, d. c., 25A, H. & D;
Toledo, gap, d. c. No. 301A, 302B
& 205E; Bliss, d. c. Toggle No. 407A.
Slotters, dill, 18".
Unsetters, Acme 1"; Ajax 1 1/2, 2.3 & 4".

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Hobbers, No. 3 B & C.
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Millers, Nos. 0-Y Brown & S.
Radial drill, 4' American sensitive.
Turret lathe, Nos. 2 & 6 Warner & S.

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Lathe, 9"x31" Sebastian 85.
Lathe, 16x10 So. Bend m. d. 275.
Lathe, 36x18 L. & Ship. m. d. 1895.

Miller, No. 3H LeBlond \$ 495.
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Shaper, 16" G E #165, 20" S.M. 195.
Slotter, 13" Bement 295.
Turret lathe, No. 2 W. & S. 150.

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Cambridge, Mass.

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Drill, 5' American universal.
Gear hobber, Mikron.
Grinder, 20"x168" Landis plain.
Grinder, No. 2 Cincinnati, centerless.
Lathe, 12"x8" Hendey geared head.
Lathe, 30"x15" Niles-Bement-Pond.
Miller, No. 2-B Brown & Sharpe.

Miller, 3B heavy Brown & Sharpe.
Miller, No. 3 Cincinnati vertical, rapid traverse.
Shear, combination, Schatz.
Shear, No. 636 Niagara power, gap.
Spot welders, 17 & 25 k.v.a. Thompson
Turret lathe, No. 4 Warner & Swasey universal, geared head.

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Drill, 4 spindle Allen, h. s., b. b.
Grinder, No. 14 Pratt & W. vert. sur.
Grinder, 16" Persons arter rot. sur.
Hammer, 4A High Speed riveting.
Lathe, 14"x8" Hendey q. c. g. tie-bar
Lathe, 28"/48x12" R.-L. sl. bed q. c. g.
Mill, 2-M Potter & J. horiz. auto.
Mill, No. 4 Cincinnati univ. c. p.

Mill, No. 3 Kempsmith univ., c. p.
Oil groover, No. 1 Fischer.
Planer, 22"x22"x8" American.
Press, No. 21 Bliss-Consol. horning.
Press, No. 13 Toledo. horning.
Press, No. P3 Ferracute, s. b.
Screw mche., No. 6 Warner & S.
Shear, Wangler rotary bevel, 4" cap.
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Grinder, snagging, hvy. duty, dbl. end.
Lathes, 26"/28"x12" Boye & E., t. a.
Lathes, 20"x8" Hendey cone, t. a.
Lathe, 18"x8" American geared hd.
Lathe, 16"x6" LeBlond production.
Turret, 24" Steinle, 4" hole.
Turret, 21" Steinle, 4" hole.
Miller, plain, No. 4G LeBlond, g. h.
Miller, plain, No. 1B B. & S. grd. h.

Miller, univ. No. 2 B. & S. cone.
Miller, univ. No. 2 Hendey, g. h.
Miller, vert. No. 1 1/2 Knight, m. & d.
Miller, hand No. 3 Garvin.
Pipe machine, 18" Saunders.
Planer, 48"x36"x16" N. B. P., box tbl.
Press, No. 44 Adriance dbl. action cam
Saw, hack, 8" Acme heavy duty.
Saw, cold, No. 22 Espen Lucas, 6".
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 Saws, H. S. Peerless; 1 & 2 Marvel.

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 515, S. S. Acme Automatic.
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 Shears, 30, 36, 42, 52, 62, 96" ft. pwr.
 Shrs., pwr., 62" 10 ga.; 10' $\frac{1}{2}$ "; 10' 10 ga.
 1000 parts & collets for automatic
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 Westinghouse 50 h. p., d. c. motors geared.....\$ 250.
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Milling machine, No. 4B Brown & Sharpe plain, c. s. d., single pulley drive
Miller, No. 3A Brown & Sharpe universal, c. s. d., single pulley drive.
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30"x14" L. & S., 3 S. C. D., D. B. G.
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20"x16" American, Geared Head.
21"x10" LeBlond Geared Head.
20"x8" Am. Grd. Hd., M. D., late t.
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72" Cincinnati Rapid Production.
24": 36" and 42" Bullard "New Era"
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60" Niles Boring Mill, 2 heads.

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Nos. 2 and 3 Cincinnati High Power
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Briggs Manufacturing Miller.
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No. 3 & 3-E Leas-B. Thread Millers.
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24"x24"x8" Gray Planer.
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30"x36"x11" Cincinnati, late type.
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16", 20", 24" G. & E., mtr. dr. thru g. b.
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28⁸ Gould & Eberhardt, cone.
28⁸ Ohio, cone.
25⁸ Springfield, m. d. thru gear box.
20, 25⁸ Smith & Mills, cone.

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18"x8¹ American, cone.
18"x8¹ American, Geared Head.
18"x10¹ Hendey, cone.
20"x6¹ Hendey Geared Head.
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20"x8¹ American, Geared Head.
22"x12¹ Whitcomb-Blaisdell, cone.
22"x14¹ Lodge & Shipley, Selec. Hd.
23"x10¹ LeBlond, Geared Hd., taper.
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24"x10¹ Bradford, cone.
30"x12¹ American, Geared Head.
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24-48"x10¹ Rahn-Larmon Cap., motor drive.

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24⁸ Cincinnati Duplex Auto. m. d.
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No. 21 Brown & S. Automatic, m. d.
No. 1, 2, 3, 4 Cincinnati Pl., cone.
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No. 2, 3 Brown & Sharpe Univ., cone.
No. 2 1/2 B Milwaukee Vertical, s. p. d.
No. 4 Kempnith Vert. Maxi-Miller.
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No. 3 Robinson O. B. I.
D2, DD2, DAG3 Ferracute Drawing
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No. 54A Toledo Special.
No. 83C Michigan D. C. geared.
No. 90E Toledo.
No. 92 1/2 C Toledo D. C. Geared.
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No. 11 Giddings & L. Teromatic, 3 m. d.
No. 70 Heald Internal.
No. 50 Heald Cylinder, m. d. hydr. fd.
No. 55, 60, 65 Heald Cylinder, belt.
No. 1 LeBlond Universal Tool & Cutter, belt.
No. 6G Diamond Disc, belt.

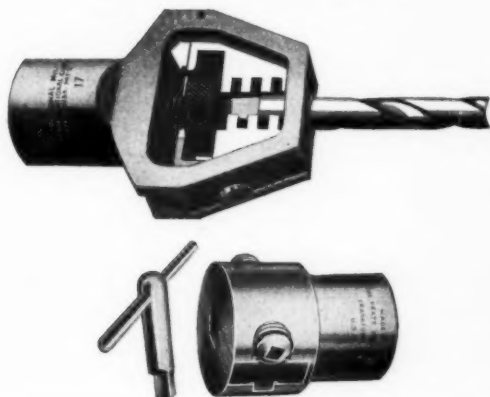
DRILLS

- 5¹ Am. Triple Purpose Radial, m. d.
7¹ Fosdick, cone.
4¹ Fosdick, s. p. d. thru gear box.
4¹ Dreses, s. p. d. thru gear box.
2 spindle L. & G. B. B., No. 3, late.
2 sp. L. & G. B. B., No. 2, direct m. d.
6 spindle No. 1/2 Avey, latest.
1 spindle No. 2 Avey, latest.
No. 00S, ISS Garvin Horizontal Dup.
TURRET LATHES, MFG. LATHES & SCREW MCH.
No. 2A, 3AW & S. Univ., m. d., bar
No. 2A, 3A W. & S. Univ., m. d. chk.
No. 4 Warner & Swasey Univ., belt.
No. 1, 4, 6, 8 W. & S., Turret.
No. 5A, 6A, 7A Potter & J Autos.
No. 23, 24 New Britain Automatics.
4 spindle Foote-Burt Heavy Duty.
No. 30 Natco Multiple, motor drive.
No. 25 Bausch Straight Line, m. d.
21⁸, 24⁸, 28⁸ Cinc.-Bickford Upright.
No. 121, 216, 217, 310, 314, 315
Baker H. D. Upright.
No. 22 Colburn Mfg.
No. 4 Colburn Mfg., m. d., latest.
4 spindle No. 2 Colburn Mfg., m. d.
No. 53, 54, 55 National Acme Auto.
3 1/4⁸ Gridley Automatic.
21⁸, 24⁸ Gisholt, Turret.
Gisholt Simplimatic, motor drive.
2x24⁸ Jones & L. bar equip., m. d.
3x36⁸ Jones & L., 2 sp., chucking, m. d.

Write for Complete List.

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3265 Spring Grove Ave., CINCINNATI, OHIO

Bargains In New Pratt Drill Chucks



Model	Capacity	Weight	List Price	Our Price
Round Body	0— $\frac{1}{4}$	7 oz.	\$ 8.00.	\$ 1.95
Skeleton Body	0— $\frac{1}{4}$	4 oz.	8.00	1.95
Round Body	0— $\frac{3}{8}$	1 lb. 3 oz.	10.00	2.85
Skeleton Body	0— $\frac{3}{8}$	12 oz.	10.00	2.85
Round Body	0— $\frac{3}{4}$	5 lb. 2 oz.	13.50	5.45
Round Body	0—1	9 lb. 2 oz.	17.50	6.75
Round Body	0— $1\frac{1}{2}$	24 lb.	30.00	12.00
Skeleton Body	0— $1\frac{1}{2}$	18 lb.	30.00	12.00
Round Body	0—2	49 lb.	32.50	13.50

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Universal Milling Machines
 No. 2 Cinti. rd. overarm; all grd.
 a. c., m. d., guaranteed \$1250.
 No. 18 Oesterlin, s. p. d. 700.
 No. 1 Hendey-Norton, C. Dr. 550.
 No. 2A B. & S. C. Drive, 10" Plain Dividing Head 575.
 No. 2 B. & S. C. Drive (Old Timer) 12" Univ. Div. Hd., Gears for Spirals 275.

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 No. 4 Cincinnati Plain rectangular overarm, s. p. d. \$2250.
 No. 3 B. & S. Ver. As h. 650.

We also have at the Lucey Mfg. Co. Plant, Chattanooga, Tenn.
 125 Lathes; Planers; Shapers; Boring Mills; Radial Drills; Steam Hammers; 3-A Warner & Swasey and Gisholt Turrets; Grinders; Furnace; Pulverizer; Cranes; Transmission; 3-203 H. P. High Pressure Boilers, Stacks, etc.

Bullard Vert. Turret Lathes,
 3-24" "Asls", each \$ 850.
 Serial Nos. 7090-9617-8894.
 1-36" "Asls", "Ser. No. 6683 \$1500.
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 3-21"x10' Geared Hd. each, 750.

Presses
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 No. 59-1/4 Toledo single crank 7700.
 No. 95-1/2 D Toledo, 84", double crank, 8000.

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High Grade Used Machinery

No. 2 Brown & Sharpe Surf. Grinder.
 No. 16 Blanchard Surface Grinders.
 No. 65 Heald Cylinder Grinders.
 8" Heald Ring and Surface Grinder.
 10"x36" Landis External Grinder.
 Several 1 to 10 H. P. 220 V. Motors A. C., 60 Cycle.
 Also Shafting, Pulleys, Bearings, Belting, Etc.

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 No. P-3 Ferracute Punch Press.
 30"x30"x8' Gray Planer.
 16"x8' Bradford Engine Lathe.
 No. 2-X Garvin Tappers.
 C., 60 Cycle.

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42" King Vertical Boring Mill geared feeds, motor drive.
 16-20-24" Gould & Eberhardt Shapers, gear box, motor drive.
 48"x48"x26' Cincinnati Planer, 4 heads, motor drive.
 No. 2 Brown & Sharpe Surface Grinder with magnetic chuck.
 No. 2 Ohio Universal Miller, geared head, s. p. d., like new.
 18" Cincinnati Duplex Milling Machine, motor drive.
 6' American Plain Radial, gear box, motor drive.
 6' Cincinnati Bickford Plain Radial, gear box, motor drive.
 No. 4 Cincinnati Plain Miller, high duty, s. p. d.

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Iroquois Machinery Co., No. 666 Ohio Street,
 BUFFALO, N. Y.

"RE-MANUFACTURED"

PARTIAL LIST ONLY

Boring Machines (Hor.)

No. 2 Lucas, 38" bar.
No. 3 Universal, 38" bar.

Boring Mills (Vertical)

24" Bullard, "New Era".
32" & 42" King.
36" & 42" Bullard "New Era"
61" Bullard Maxi-Mill.
62" Colburn, Heavy Duty.
72" & 84" King.
10' Niles, belt drive.

Drills (b. b.)

1, 2, 3, 4, 6 spdl. Leland-Gifford.
1, 2, 6 spdl. Henry & Wright.
2 spindle Avey.

Drills (Mfg.)

Nos. 2 & 14 Colburn, 1, 2, 4 spindle.
Nos. 121 & 217 Baker, m. d.
No. 24 Foote-Burt, h. d.
21", 24" Cinn.-Bick., slid. head.

Drills (Radial)

3' Dresen, m. d.
3' Western, timken bearing, m. d.
4' Cinn.-Bickford, m. d.
3' American, triple pur.
5' American, full universal.

Gear Cutters

Nos. 3 & 12 Barber-Colman.
Nos. 9-H & 18-H G. & E. hob.
Nos. 6, 65, 61, 612 Fellows.
No. 715 Fellows.
No. 4, 36" Brown & Sharpe.
No. 6, 60" Brown & Sharpe.
6" & 18" Gleason bevel gear.

Grinders (Plain)

6"x20" Landis, hydraulic.
Nos. 10, 12 B. & S.
10"x24", 36", 50" Norton.
10"x72" Norton.
10"x20", 36", 52" Landis.
14"x36", 14"x72" Norton.
18"x96" Norton, m. d.
20"x120" Landis, m. d.

Grinders (Univ.)

No. 2 & No. 3 Bath universal.
No. 4 Landis.

Grinders (Misc.)

Nos. 60 & 70 Heald, Internal
No. 2 Brown & Sharpe, surface.
No. 10 Blanchard, surf., m. d.
No. 16-26" Blanchard, surface.
No. 3 Abrasive, surface.
14"x36", 22"x7" P. & W. surface.
15"x17"x72" Norton, o. s., surf.
36" Diamond, hyd. face.

Lathes (Screw Cutting)

8" Rivett Bench, rel. attachment.

13"x6" LeBlond, s. p. d.
16"-18"x6" American, sel. g. h.
16"-18"x8", 10" L. & S. sel. g. h.
20"-22"x8", 12" L. & S. sel. g. h.
24"-27"x12" L. & S. sel. g. h.
27"-30"x18" L. & S. sel. g. h.
36"-40"x14" L. & S. sel. g. h.
36"x30" Rahn-Larmon, g. h.
66"x21", 36" Putnam t.g., m. d.

Millers (Thread)

4"x12" Pratt & Whitney.
6"x14", 6"x48", 6"x60" P. & W.
No. 4 Lees-Bradner.

Millers (Plain)

Nos. 0.1, 2, 3-B, 4-B, 5-B, B. & S.
No. 1-B Milwaukee, motor drive.
No. 2-B Milwaukee, s. p. d.
Nos. 2 & 3 Cinn. h. p., s. p. d.
No. 3-B, No. 4-B Milw., s. p. d.
Nos. 4 & 5 Cinn. h. p., s. p. d.
No. 5 Ingersoll vertical & horiz.

Millers (Univ.)

No. 2A Brown & Sharpe.
No. 3-GS Hendey, s. p. d.
Nos. 3, 4 Cinn. h. p., s. p. d.

Millers (Vert.)

No. 1-A Milwaukee, s. p. d.
No. 2-M Cincinnati.
No. 4 Cincinnati h. p., m. d.
No. 3 Cinn. h. p., motor-in-base.
No. 4 Cinn. h. p. inter. fds.
No. 5 Brown & Sharpe.

Millers (Mfg.)

18", 24" Cinn. duplex, s. p. d.
No. 33-36" Kempsmith, m. d.
24"x24"x12" Ingersoll slab.

Planers

24"x24"x12" Gray.
26" Lynd-Far., open-side.
36"x36"x10" Gray, rev. m. d.
36"x36"x24" & 48"x48"x10" Gray.
56"x56"x32" Cincinnati.
72"x72"x12" Cincinnati.

Presses

No. 20 Bliss.
No. 4 Rockford.
No. 95-E Toledo, double crank.
H. & W. 50-ton dieing machine.

Shapers

20" Gould & Eberhardt.
24" Gould & Eberhart, s. p. d.

Turret Lathes

No. 4 W. & S., screw, m. d.
Nos. 3A & 4A W. & S. univ. tur.
18"-3-9/16" Libby, motor drive.
26"-7/8" Libby, inter. turret.
No. 4-L 9 1/2" Gisholt, turret.

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35 Van Buren St.,

NEWARK, N. J.

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64" Bullard Maxi Mill.
14' Betts.
100" Niles-Bement-Pond.
84" Betts.
72" Colburn.
62" Niles-Bement-Pond.
42" Gisholt.
36"-44" Niles-B.-P. side head.
12"-8"-6" Bullard Mult-Au-Matic.
64"-54"-42"-36"-24" Bullard New
Era Type Vertical Turret Lathes.
Nos. 1 & 2 Barret Hor. Cyl. Boring.

MILLING MACHINES

No. 3-A Brown & Sharpe Univ.
No. 5 Cincinnati Rect. Overarm.
Nos. 5, 4, 3, 2 Cincinnati, Plain.
Nos. 3 & 4 Cincinnati Vertical.
No. 4-B Brown & Sharpe, Plain.
No. 3 Kempsmith Full Univ. Cone.

LATHES

96"x54" Niles-Bement-Pond Grd.
Head, with 2 carriages.
42"x24" American Geared Head.
30"x30" Boye & Emmes Geared
Head.
16"x8" American Geared Head.

MISCELLANEOUS

No. 65 Heald Cylinder Grinder.
No. 1 Brown & Sharpe Universal Grinder.
120"x96"x20" Cincinnati 4 Head Planer. Forced Feed Lubrication.
Power Rapid Traverse, Motor Drive.
16" Southwark Plate Planer. 1 1/4" capacity, motor drive.
No. 67 Consolidated Straight Side Press, Geared, Side Trimming At-
tachment, with Marquette Air Cushion.
6" American Triple Purpose Plain Radial Drill.
6" and 4" American Triple Geared Plain Radial Drills.
No. 4 Colburn Heavy Duty Drill, Compound Table.
2" Gridley Model "G" 4 sp. Auto. Screw Mch., M. Dr., Serial over 17,100.

NEW 3 Phase Motors—5 h. p. \$55.75

LATHES

12"x 5' Cleveland, geared head.
14"x 6' Carroll-Jameson, q. c.
18"x 8' American qk. ch., taper att.
21"x14" LeBlond.

TURRET LATHES and SCREW MACHINES

Nos. 52, 53 and 55 National Acme.
21" and 24" Gisholt, (motor drive).
5" capacity Acme.
13/16" capacity Foster (2).

SHAPERS

16" Smith & Mills, motor drive.
16" Queen City, back geared crank.
20" Smith & Mills, back grd. crank.
25" Smith & Mills, back grd. crank.

PRESSES

No. 24 Toledo Cam Drawing.
No. 2 Open Back Inclinable.
150-ton Elmes Hydraulic.
No. 24 J. M. Robinson, O.B.I., new

DRILLS and RADIALS

4-spindle Demco bench (new).
4-spindle No. 1-B Avey high speed.
3'6" Fosdick Radial.
5' Haugh radial.
22", 24", 26" and 32" sliding head.
No. 86 D Hole Hog 7-spindle.

MILLING MACHINES

24"x20"x8" Ingersoll horizontal, motor drive, like new.
No. 2 Kempsmith Universal.
No. 4 Lees-Bradner thread miller.

GRINDERS

No. 1 W. & M. surface.
6"x18" Fitchburg plain.
16"x42" Landis universal.
10"x20" Landis plain.

MISCELLANEOUS

Blowers, positive pressure.
Boring mill, No. 3 Colburn.

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OSBORNE & SEXTON
MACHINERY Dept. H. **COMPANY**
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- No. 5A Debauch hor. m. d. $3\frac{3}{4}$ " bar.
No. 31 La-as m. d. 3" bar.
36" Bullard New Era type vertical.
24" Bullard vertical rapid prod. type.

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No. 3 Cincinnati cone drive plain.
No. 2 Rockford all geared, single pulley drive, plain with vertical attachment.
2—No. 2 Cincinnati cone drive plain.
28" Cincinnati semi auto. n fg. type.
3—Type A Gooley & E. mfg. type.
No. 2 Knight vert. milling a. d d siling.
No. 1 Cincinnati universal cone type.
2—No. 3 Cincinnati univ. cone type.
No. 2M Potter & J. dbl. table auto.
4" Newton double end spline.
No. 3 Cincinnati vertical.

DRILLS

- 2—No. 416 Baker heavy duty 5" sp.
No. 314 Baker heavy duty.
No. 2 Colburn heavy duty.
28" Aurora sliding lead b. g.
Foote Burt 24".
2—Barnes horizontal adjustable head.
No. 1—16 spindle Baugh multiple.

LATHES

- 36"x15" Bridgeford all grd. mtr. dr.
30"x10" Springfield cone d. b. g.
18"x10" Bradford quick change.
18"x8" Hendey taper attachment.
18"x8" Monarch quick change.
16"x6" Hendey taper attachment.
16"x8" Monarch quick change.
16"x8" American quick change.
14"x6" Hendey taper attachment.
3—12"x5" Hendey quick change.
10 Coulter automatic threading.

GRINDERS

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Springfield 45" vertical and horizontal rotary oscillating surface.

- No. 2 & 3B. & S. Univ., belt drive.
14"x36" Queen City self contained.
10"x36 Landis plain self contained.
3—No. 11 B. & S. plain self cont.
2—No. 65 Heald internal.
2—No. 70 Heald internal.
No. 2 Sellars universal tool.
2—No. 3 Wilmarth & Morman sur.
No. 6 Gardner B. B. disc. belt drive.

PRESSES

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No. 3½ B Bliss D. A tog. 15", 22" str.
No. 3 D. C. Bliss 30" sq. bol. 6" str.
No. 205E Toledo geared 3½" stroke.
No. 92½ C Toledo d. c. b. g., 3" str.
About 20 O. B. I. all sizes.

SHAPERS

- 2—24" G. & E. b. g., cone drive.
20" Springfield b. g., cone drive.
20" G. & E. back geared, cone drive.
2—16" G. & E. back geared, cone dr.

PLANERS

- 48"x48"x12" Cleve. open side, m. d.
36"x36"x12" Bickett double housing.
30"x30"x10" Liberty open side.
26"x26"x8" Cincinnati dbl. housing.

MISCELLANEOUS

- 19x12x14 Bury air compressor.
14x12x9x12 Imperial XB2 Ingersoll-Rand air compressor.
No. 26 Williams & White bulldozer.
No. 712 Fellows gear shaper.
No. 4B Etna swager.
No. 652 New Britain automatic chucking machine, motor drive.
3—½" Landis double spdl. bolt cutters.
2" Acme double spindle bolt cutters.
800 lb. Model F Chambersburg board drop hammer.

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N. B. P. 72¹ Vertical, 2-hds, hvy.
Bullard 24¹, 36¹, 42¹ New Era.
Colburn 48¹ Vert., 2 swivel heads.

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Gleason 15" Spiral Finisher.
Gleason 15" Spiral Roughing Mch.
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Fellows No. 7, 71, 712.

Bryant No. 3 Internal, heavy duty.
Herald No. 72 Sizematic.

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Cincinnati No. 2, 3, 4 Horizontal.
Cincinnati No. 2, 3, 4 Vertical.
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Cincinnati No. 2M Univ. M-I-B.
Brown & Sharpe No. 1½, No. 2 Univ.

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Landis 2" Pipe Threader.

SPECIAL

**AMERICAN 30"x22" 12-speed head Super-Productive Lathe,
2 carriages; motor drive, taper attachment.**

**INGERSOLL 44'x26'x14' 4-head Adjustable Rail Planer
Type Milling Machine, motor drive.**

Grinders:

Landis 6x18, 10x36, 10x72, 10x96.
Norton 10x72; 18x96; 18x120.
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Signal & Keeler 8" Pipe Machine.
Loy & Nawrath No. 312 Power Press
Brake, tie rod, $\frac{3}{8}$ " cap. 12' 6" be-
tween housings.

Over 1000 other tools—send us your inquiries.

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No. 181S Toledo Toggle drawing press, 14" shaft, 42" plunger stroke, motor drive.
No. 545½ Hamilton double crank press, 4" stroke, arranged for motor, bed 34"x54".
No. 7D Bliss double crank press, 6" stroke, arr. for motor, bed 38"x72".
No. 8 Bliss double crank press, 10½" stroke, arr. for motor, bed 36"x50".
No. 94½F Toledo double crank press, 4" stroke, arr. for motor, bed 38"x72".
No. 95½D Toledo double crank press, 12" stroke, arr. for motor, bed 40"x84".
14"x72" Norton plain grinder, rebuilt, very good.
No. 6 Becker vertical millers, with rotary.
½"-¾"-1"-1½"-2"-3" Cleveland automatics.
12 ft. Robinson double slide toggle brake.
36" Cincinnati back geared, tapping attachment.
200 Ton Lourie hydraulic press, 44" between housings.
60"x48"x20" Pond planer, 4 heads, rev. motor drive.
96"x73"x20" Pond planer, 4 heads, rev. motor drive.

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1st National-Acme 5 sp. Model "C", serials over 15,100-B.S.M. d. (3).
1^{1/2}" National-Acme 5 sp. Model "C", ser. 13,278-B & 13,269B, m. d. (2).
1^{3/4}" Gridley 4 sp. Model "GA", ser. 15337-GA & 15,339-GA m. d. (2).
2^{1/2}" Gridley 4 sp. Model "F", m. d.
2^{3/4}" Gridley 4 spindle Model "F", motor drive (2).
6^{3/4}" Cleveland Model "A", serial 27,754, Brown & Sharpe Nos. 00, 00G, 0, 2, 2G, 3, No. 6. High Speeds Nos. 0 & 0 Turret Formers.

Grinders

No. 2 Cinc. Centerless, ser. 1A-114 & H-2026V, m. dr., Like new (2).
No. 10 B. & S. Self Cont., m. d. (3).
No. 1 Brown & Sharpe Universal (2).
No. 2 Brown & Sharpe Universal.
No. 4A Landis Universal Crankshaft, serial 20,410.
No. 55 Heald Internal Cylinder.

Millers

No. 2 Cincinnati H. P. Rectangular Overarm Plain, motor drive, motor located inside base of machine.
No. 3 Cincinnati H. P. Rectangular Overarm Plain, Motor Drive.
No. 3SCinc. H.P. Pl., S. P. Dr. (2).
No. 3 Cinc. H. P. Univ., Mtr. Drive.

Miscellaneous

No. 3 Barber-Colman Gear Hobbing Machines, ser. over 890, m. d. (3).
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24" Bullard "New Era" Vertical Mill, serial 11,692.
No. 5 Jackson Die Sinker, Cherry Att. quantity cherry tools.
Drill, Natco 12 spindle straight in line.
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No. 1/2 Buffalo Universal Ironworker, Punch & Shear.
Shatz Punch & Shear, Cap. Punch 20mm thick x 30mm.
Knowles Horizontal Keyseater

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No. 3 OHIO PLAIN MILLING MACHINE,
Rectangular overarm—motor in base.

No. 5 CINCINNATI PLAIN MILLING MACHINE,
Single Pulley Drive, Slotted Nose, high power type,
Power rapid traverse, with Vertical Attachment.

No. 2 BROWN & SHARPE SURFACE GRINDER,
with Magnetic Chuck.

No. 70 HEALD INTERNAL GRINDER.

Hundreds of other tools to select from

Indianapolis Machinery & Supply Co., Inc.
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18x8 Hendey Lathe, T. A., 20,000 serial.
 36" Bullard New Era Type, Motor Drive.
 3A Warner & Swasey 18" Chuck, Motor Drive.
 18"x16" Geared Head Hamilton Lathe, Motor Drive.
 24" Gould & Eberhardt Shapers, cone drive.
 No. 20 Bliss O. B. I. Geared 4" stroke, Motor Drive.
 No. 14, 16 and 30 Natco Multiple Drills.
 No. 24 Gardner Disc Grinders, vertical spindle 54" diameter disc, M. D.

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 Hobber, No. 12 Barber-Colman.
 Shears, No. 500 Toledo Gap, 10'-
 ¾"; Pels No. ME-10.
 Presses, No. 6 Bliss Cam, Nos. 1, 2,
 3, 4 O. B. I.; No. 5 Ferracute.
 6' Nia, Power Shears, brakes, rolls.
 Millers, No. 1 Kempson Univ.; No. 2
 B. & S. Pl., s.p.d.; No. 2 Rock'd;
 No. 2 Cincinnati Plain.
 Grinders, No. 55 Heald Int.; Landis
 No. 3 Universal; Norton, Wells and
 Cincinnati Tool Cutter; Bealy Disc.

Shapers, 15" & 24" Potter & Johnston;
 Rhodes 7" Slotter: 24" G. & E.
 Drill Press, Avey, Allen, Leland Gif.,
 1 to 4 sp.; Bausch No. 2, 30 sp., m. d.
 Radials, 5' Amer Tr. Pur.; 5' Am Univ.
 Boring Mills, 36", 60" Bullard; No. 0
 Ciddings & Lewis.
 Screw mchs., No. W. & S. g.h., univ.,
 15 W & S. all sizes; Nos. 5, 7 B. & O.
 Lathes, 18"x8" Hendey, taper collets;
 also all sizes incl. 50"x20" Fitchburg.
 Saws, 6x6 Peerless, belt, motor drive.
 Welders, 7½ to 40 k. w., spot & butt.

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 Eyelet Machine, No. 156 Farrel Foundry.
 Eyelet Machine, No. 26 Manville, 6 plunger.
 Screw Machine, No. 6 Warner-Swasey Hand with large
 collet and bar equipment and chuck.
 Boring Mill, 24" Bullard Rapid Production.
 Grinding Machine, No. 1 Brown & Sharpe Universal.
 Surface Grinder, Model "B", 14" Pratt & Whitney Verti-
 cal, 20 h. p., motor drive.
 Spinning Lathes, 22" Fruin, Ball Bearing, (3).
 Screw Machines, No. 00 Brown & Sharpe Automatic, (3).
 Power Press, No. 10-S Standard.
 Power Press, No. 63 Bliss Straight Side Geared.
 Gear Cutter, No. 13 Brown & Sharpe Spur and Bevel.

GEO. T. REYNOLDS & SON,
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 Grinder, No. 103 Rivett Internal.
 Grinders, No. 1 W. & M. Surface, b. b.
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 24"x16" New Haven Lathe.
 Lennox Rotary Bevel Shear, ¾" cap.

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 No. 3 Cin. Pl. Mill. Mche. cone dr.
 10' Garrison Pow. Press Brake, 16 ga.
 2½" Landis Bolt Cutter, B. D.
 H&J S.E. Punch 62" Th., cap. 1½x1½"
 32" Cinc. M. D. Heavy duty shaper.
 3"x36" J. & L. Turret Lathe, bar feed.
 20"x10" Hendey Lathe dbl. friction CS.
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 Grinder, No. 2 Morse plain cyl.
 Grinders, Nos. 2, 3 W. & M. sur. cks.
 Grinder, No. 2 American surf. ck.
 Grinders, No. 1 W. & M. univ. t. & c.
 Grinder, No. 14 Bealy disc, press.
 Lathe, 17"x8' Sidney, q. c. g.
 Lathe, No. 3 Foster turret, friction hd.
 Lathe, No. 3 Kempamith turret.
 Lathe, 20"x8' Roulsted, p. c. g.
 Lathe, 20"x12' Bradford, q. c. g.

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 Miller, No. 3 Kemp., pl., vise & c. s.
 Miller, No. 2B K. & T. dbl. overarm.
 Miller, No. 1 Kempamith univ., d. hd.
 Miller, No. 2 Cleveland plain, s. p. d.
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 Press, No. 2 Consolidated, o. b. i., 2" st.
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Drill, 4 Sp. Allen No. 2.
Drill, 3 Sp. Edlund No. 2-B.
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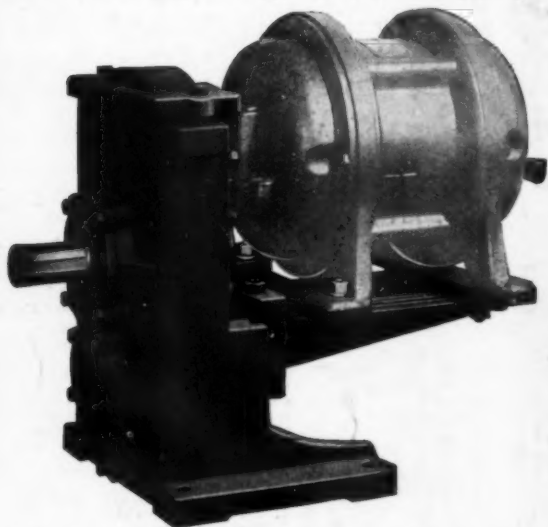
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